OGY DEPT

HILTON ILICATION

MAY



Your sons, husbands and brothers who are standfighting fight the battlefronts are are fighting today upon victory in wer.

for more than world of freedom and peace.

ing for a new world of freedom and peace. TO THE AMERICAN PROPLE:

We, upon whom has been placed the responsibilto upon whom has been placed the responsibiland the American forces appeal to We, upon whom has been placed the responsibility of leading the American forces, appeal to ity of leading the American stress to invest ity of leading the possible earnestness the possible earnest

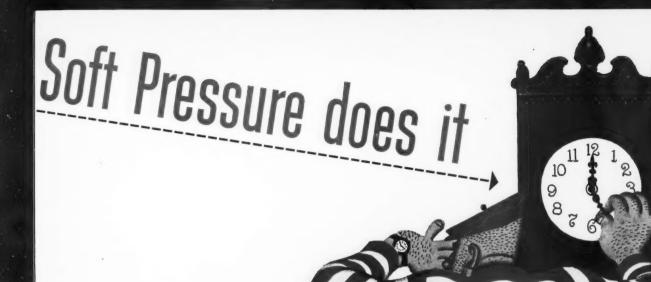
ity of leading the American forces, appeal to invest in you with all possible earnestness of your with all the fullest extent of your with all the fullest extent you with all possible earnestness to inv.
Wer Bonds to the fullest extent of your Give us not only the needed implements of war, but the assurance and backing of a united Give us not only the needed implements of war, but the assurence and backing of a victory and but the assurence to hesten the men.

People so necessary your fighting men.

speed the return of your fighting men. capacity.

Dough Nimbaur Mining

MORE BONDS



Steel for long life—Soft-Pressure for longer life! Steel forms an ideal bearing against cast iron, provided it bears softly, gently, as in the Hastings Steel-Vent.

That's why Steel-Vents are used by motor specialists, everywhere, in rebored as well as tapered jobs.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN
Hastings Mig. of Canada, Ltd., Toronto

SOFT PRESSURE DOES IT - IN REBORES TOO

One trial convinced this fleet operator that Steel-Vents are the right ring for any job: "Two years ago we started to use Steel-Vent 'motor engineered' sets in our rebore jobs as well as our repair jobs. Will admit that we were skeptical but the results we have received convinced us that Steel-Vents do everything you claim. We not only get longer ring life but our motors show less cylinder wall wear."

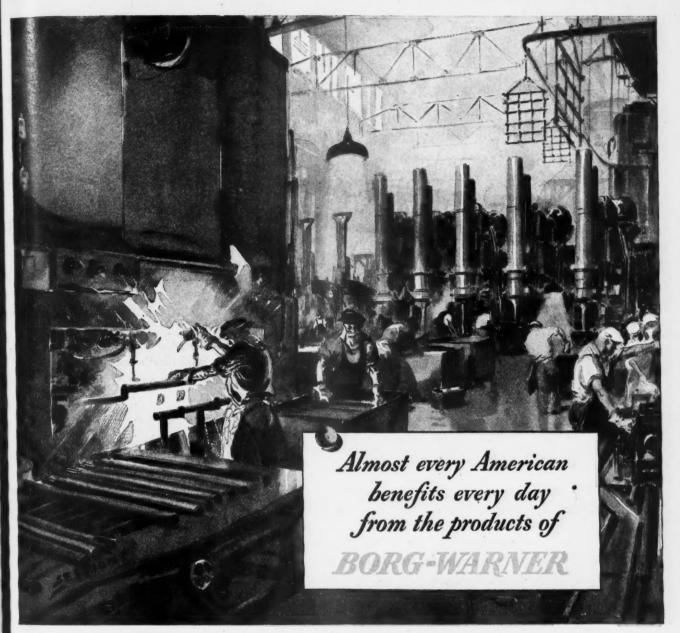
HASTINGS STEEL-VENT

PISTON RINGS

U. S. PAT. 2,148,997

TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS

It's a privilege to buy war bonds



"WAR TRANSPORT IN THE MAKING" at Mechanics Universal Joint Division in Rockford, Illinois. James Sessions paints one of many high-speed operations in the production of universal joints and drive shafts for trucks, half-tracks, tank destroyers, tanks and aircraft. This big Borg-Warner plant is one of the world's largest makers of universal joint assemblies.

Right now industry's one big job is to provide the weapons to win. When victory has been won, this demonstrated ability for mass production again will bring you the fine new cars, refrigerators and countless other conveniences which made our "American Way" the envy of the world.

Then, you can expect Borg-Warner to contribute important advancements in many fields. For Borg-Warner companies make not only complete products, but

also essential operating parts for the products of other industries.

"Design it better, make it better," is the guiding principle which directs every phase of engineering and large-scale manufacturing for this group of companies.

In war and peace this Borg-Warner creed has proven its worth. Tomorrow, as today and yesterday, it will operate to help you produce ever better products at ever lower costs. Partners with the dutomotive industry from the start, Borg-Warner supplies these and other essential parts...



TRANSMISSIONS • TRANSFER GEARS
OVERDRIVES • SYNCHRONIZERS • CLUTCHES
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UNIVERSAL JOINTS AND DRIVE SHAFTS
FLUID COUPLINGS • CARBURETORS
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Peacetime makers of essential operating parts for the automotive, aviation, marine and farm implement industries, and of Norge home appliances... these units which form the Borg-Warner Corporation are today devoted exclusively to the needs of war: Borg & beck • Borg-Warner international • Borg warner service parts • B-w superchargers, inc. • Calumet steel • Detroit Gear • Detroit vapor stove • Ingersoll steel & DISC • Long • Marbon • Marvel-Schebler Carbureter • Mechanics Universal Joint • Morse Chain • Norge • Norge Machine products • Pesco Products • Rockford Clutch • Spring division • Warner Automotive Parts • Warner Gear

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Encourage the farm money to come your way. Stock and display these products advertised in current issues of the FARM JOURNAL.

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Of the "Big Four" general magazines-Life, Saturday Evening Post, Collier's, FARM JOURNAL—FARM JOURNAL is the only one that covers the rural market.

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PROTECT AGAINST

Corrosion

Head Seizure

Corrosion quickly attacks many types of cylinder head gaskets. It eats into engine blocks. It ruins cylinder heads, particularly aluminum heads.

Prevent corrosion . . . water seepage . . . loss of compression . . . head seizure.

Apply Permatex Aviation Form-A-Gasket to both sides of cylinder head gaskets and over entire surface of stud bolts. It will produce a non-drying, elastic, adhesive, heat-resisting, non-corrosive seal.

PERMATEX COMPANY, INC. BROOKLYN 29, NEW YORK, U. S. A.





FORM-A-GASKET NO. 1

Fast drying and hard setting. Used principally for making permanent assemblies, for building up uneven or warped surfaces and for the repair of broken parts. Makes unions leakproof to gasoline, gasoline vapor, kerosene, hot or cold oil, grease and water. Resists highest pressures and greatest strains.



FORM-A-GASKET NO. 2

Dries slowly and remains pliable. Used for general assembling work on all types of gaskets, flange surfaces and screw thread connections. Like Form-A-Gasket No. 1. it makes leakproof, pressuretight unions but disassembles very easily. Preserves all types of solid gaskets from heaviest metal to thinnest cork.

MAY, 1945

When writing to autertisers please mention Motor Age

3

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"It's always been a good place to stop"

YEAR after year, motorists by the millions have favored Texaco Dealers... for Sky Chief and Fire-Chief Gasolines, for Havoline and Texaco Motor Oils, for Marfak, and Registered Rest Rooms.

Thanks to continuous Texaco advertising ... advertising which aids the war effort, promotes Texaco Dealer wartime car-care services and tells the story of the finer Texaco products to come ... car owners everywhere are reminded of Texaco Dealers and Texaco products.

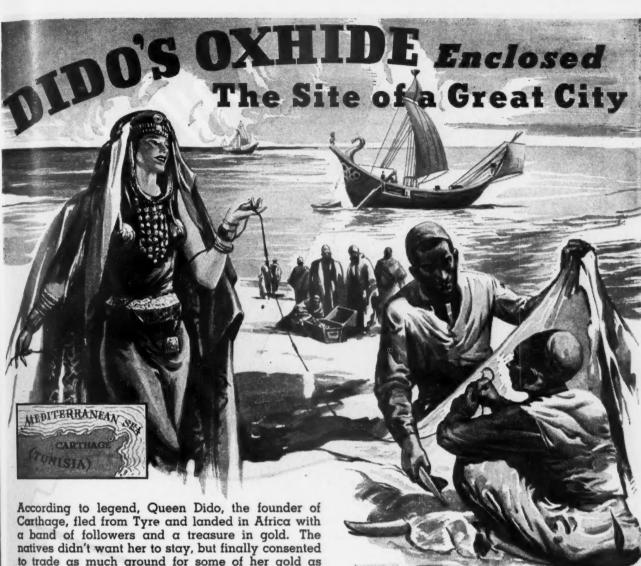
When wartime restrictions are lifted, more motorists than ever will say, "It's a great place to stop!"

THE TEXAS COMPANY 135 EAST 42nd ST., NEW YORK 17, N.Y REG.T.M. REGISTERE TEXACO DEALER SERVIC

COMING A Great Postwar Line-up for Texaco Dealers:

New FIRE-CHIEF and Sky Chief GASOLINES . Improved TEXACO and HAVOLINE MOTOR OILS

Superior MARFAK CHASSIS LUBRICATION . REGISTERED REST ROOMS . ALL NIGHT SERVICE



to trade as much ground for some of her gold as could be surrounded by one oxhide. Whereupon the wily Dido sliced the oxhide into a tiny strand with which she contrived to surround many miles of land. That was an intelligent trade!

You, too, will make an intelligent trade when you let your Jobber exchange your ailing fuel pumps for



Factory Tested Exchange FUEL PUMPS

"Your profits climb with the AIRTEX Line"

RTEX AUTOMOTIVE CORPORATION, FAIRFIELD, ILL.



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SUPPORT THE NATIONAL BRAKE-CHECK PROGRAM

COONCODED BY THE

INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE
APRIL 15 THROUGH JUNE 1

"Foot an Inch from Danger?

ANSWER: When it's the driver's foot, and the brakes don't take hold within an inch of the floor-board! The little, one-inch block placed under the brake-pedal tells the story.

That's the check which America's police are making on passenger-cars all over the nation, as the biggest concerted conservation and safety program ever attempted gets under way.

Instituted by the International Association of Chiefs of Police, at the request of President Roosevelt, endorsed by the Brake Lining Manufacturers' Association, actively supported by a group of one-hundred national organizations, and endorsed by every American, this is a program for saving lives . . . for saving cars essential to the war-effort.

Campaign Off to Good Start

The campaign is now under full steam. The big radio programs are plugging it. The national magazines are giving it feature-stories. The national advertisers are hammering its theme. The Associated Press has flashed it as newsworthy. Cooperation continues as the campaign rolls along.

From reports so far, conditions found in the Michigan state-wide test are being duplicated. Too many cars with unsafe brakes are still on the road, risking human life, endangering irreplaceable transportation. The trek to brake-service

shops for inspection, adjustment, and relining of brakes has begun, and brake-service men are cooperating to the limit of their time, talent, and manpower.

The Industry's Big Opportunity

Now is the time for each and all of us to throw every ounce of strength we have into this drive . . . for human salvage . . . for reclamation of critical cars headed for disaster.

Talk the thing up, at every opportunity. Carry the national slogan in any advertising you do. Keep the Official Poster up in a prominent place. Find out from your local Police Chief or Sheriff what else you can do to make this campaign click.

The eyes of the nation, from the Commanderin-Chief right along the line, are on our industry. We will be judged by the kind of job we do in this national emergency . . . in this nation-wide brakecheck program for the greatest good of the greatest number.

And finally: Are you stocked with brake-parts and linings and other materials to help you handle the surge of business already flowing? The more effort you put into the national program now, the longer brake-work will continue beyond June 1, when the drive ends officially. Let us know if we can help you further, and good going to you!

KEEP THIS POSTER UP DURING THE DRIVE and Afterward, Too!



BRAKE LINING MANUFACTURERS' ASSOCIATION

370 LEXINGTON AVENUE, NEW YORK 17

It's what goes on INSIDE that counts



rings yield many economies

HERE is a worthwhile crop of savings to consider. Fewer overhauls that mean less time in the shop, fewer repair bills . . . longer engine-block life that means more service per unit, fewer replacements . . . and lower fuel costs that mean important savings, accumulating day after daythese are the important benefits you reap when you install Pedrick precisioneered piston rings.

This fine performance of Pedrick rings is the outgrowth, largely, of Pedrick's exclusive process of Heat-Shaping. It imparts exactly the correct amount of tension around the entire circumference and fixes it there for the full life of the ring.

Leading repairmen use Pedrick precisioneered piston rings in Engineered Sets for all engine reconditioning jobs. They find from experience that customers are better satisfied with results-and pleased customers mean steady business.

WILKENING MANUFACTURING Co., Philadelphia 42, Pa. In Canada: Wilkening Manufacturing Co. (Canada), Ltd., Toronto.



T



PROTECT ESSENTIAL VEHICLES...THEIR LIFE IS IN YOUR HANDS

The service-job you do will determine how long . . . and how well . . . today's aging vehicles can take it. The quality of the materials you use and the quality of the work you perform was never so important as it is in these war-time days.

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Inspect clutches often. Slipping clutches waste gas. Chattering clutches strain vehicles. Grabbing clutches are hard on axles and tires. When replacing worn facings, make sure flywheel and pressure-plate surfaces are smooth. Check springs for tension and adjust clutch-assembly. If you need help, take

clutch-assemblies to your Grey-Rock jobber. He renders complete service.

Nothing is more important than brakes. Your Grey-Rock jobber has the latest brake-servicing information, including National Safety Council standards, to make your job easier, surer. He also has Grey-Rock quality balanced linings . . . for safe, sure stops . . . for longer wear. See him, too, for all . other quality parts and shop-services.

Today's transportation "must" is: Put quality first ... to make 'em last. United States Asbestos Divi-



ESSENTIAL PRODUCTS FOR ESSENTIAL TRANSPORTATION

The Chrysler-Plymouth dealer franchise highly valued today

but more so tomorrow

THERE is no question about it. It was not just good luck that made the Chrysler-Plymouth dealer franchise so highly valued today.

It was things like this. Trained field men have at all times been readily available to give sound and constructive advice. Chrysler made cars have stood up exceptionally well and won an exceptional reputation. But, to experienced, Chrysler dealers, it is something else which makes the Chrysler-Plymouth franchist holder's position most enviable: It is the knowledge that after this war is over Chrysler will provide them with even finer Chryslers and Plymouths to offer present customers and prospects at large!

And that's a mighty pleasant outlook for an automobile dealer, isn't it?

CHRYSLER

DIVISION OF CHRYSLER CORPORATION



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The American public unquestioningly expects complete service from
its repair shops and receives it. There
could be no great American Automotive Industry were it otherwise;
were car owners required to go from
one shop to another before finding
one that could perform every
required repair operation.

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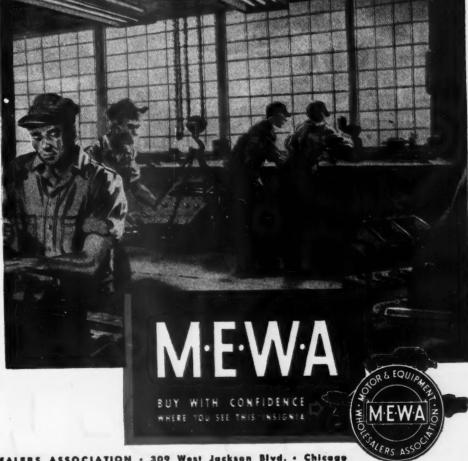
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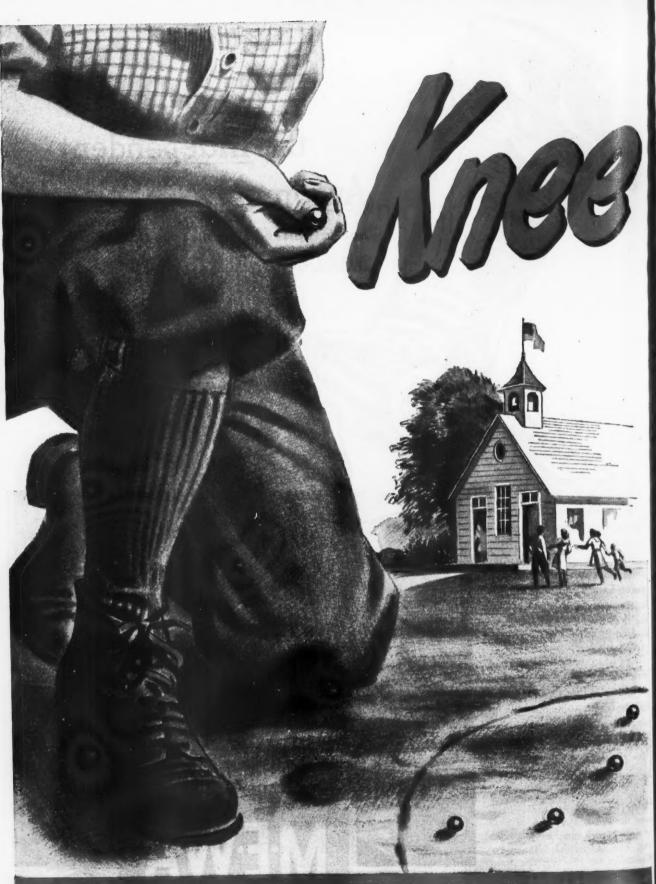
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Essential to such completeness of service are the machine shop operations performed for repair shops by the Independent Automotive Wholesaler. Where else could be secured such complete service?

In the story, Seven League Boots aved the wearer thousands of steps by making each step seven leagues long. The Independent Automotive Wholesalers are your real life Seven League Boots, saving you hundreds of time wasting, expensive steps every day by making available from one warce all needed parts, equipment, applies and machine shop service.



MOTOR & EQUIPMENT WHOLESALERS ASSOCIATION . 309 West Jackson Blvd. . Chicage



AUTE - LITE



KNUCKLE DOWN TIGHT!

It's not hard to sell merchandise these days. Most everybody's been taking everything you can give them. But the time will come when someone will shout, as in the old marble days, "Knee high, knuckle down tight!" . . . and then things will be different.

Auto-Lite is building today consumer acceptance for the future. That's the purpose of Auto-Lite's Action-Now program . . . the great radio show, "Everything for the Boys", the "Mountain Boys" promotions, the famous 'Plug-Chek' Inspection Service and the new technicolor movie by Walt Disney Productions.

Forward thinking and action like this is excellent insurance for the future . . . a future in which you too can share.

THE ELECTRIC AUTO-LITE COMPANY

TOLEDO 1

Merchandising Division

OHIO

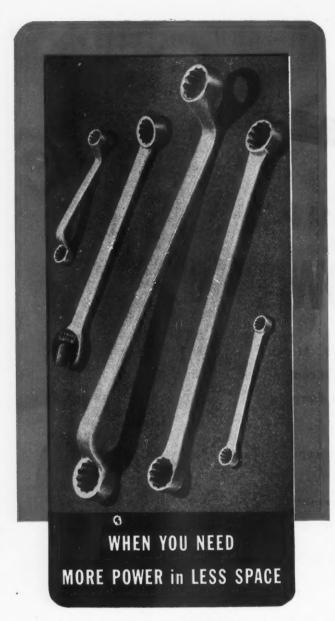
Tune in Auto-Lite's great radio show "Everything for the Boys" starring Dick Haymes and featuring men and women on the fighting fronts—Every Tuesday Night—NBC Network.



SPARK PLUGS

NETION ENGINEERED BY IGNITION ENGINEERS

AGE



When full pressure is required to tighten or loosen bolts and nuts in cramped or out of the way places, the ideal tools are Williams 12-Point Box "Superrenches". Their sleek chrome alloy construction makes them light yet durable, and easy on the hands. The choice of long or short handles, 15° angle offset or double offset patterns, provides extreme flexibility. Twelve-point openings grip the nut on six sides preventing slippage and rounding of corners.

An adequate assortment of Williams 12-Point Box "Superrenches" enables the mechanic to turn out an ordinarily troublesome job in record time.

J. H. WILLIAMS & CO., BUFFALO 7, N. Y.



DROP-FORGINGS AND DROP-FORGED TOOLS

OMOTOR AGE

With Which Is Combined AUTOMOBILE TRADE JOURNAL

FOR AUTOMOTIVE SERVICEMEN

Vol. LXIV, No. 6

May. 194

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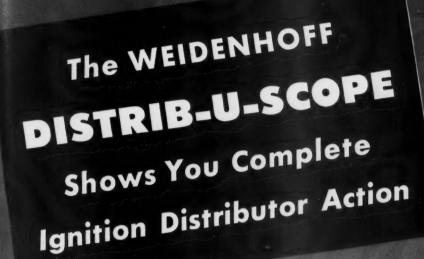
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The Weidenhoff DISTRIB-U-SCOPE, stand-by of ignition service men for years, is the only instrument of its kind which instantly shows the complete action of breaker points in the form of a band of light for each dwell period. Reveals things not even suspected on a meter where only the average of all dwell periods are shown.

Besides showing breaker point opening and closing characteristics, the DISTRIB-U-SCOPE checks vacuum and mechanical governor advance.

Checking specifications help you to adjust a distributor "right on the head."

You'll lick many so-called "rough" engines by servicing distributors in the DISTRIB-U-SCOPE.

Send for Full Particulars

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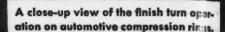
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26 basic designs for best performance

To enable you to be sure of best performance on every ring replacement job, Sealed Power engineers have developed twenty-six (26) basic piston ring designs for use in Sealed Power Individually Engineered Sets. Each set is specifically engineered to do the best possible job in a particular engine under certain conditions of cylinder wear. Sealed Power has been refining these sets over five years—has been producing rings for car, truck and engine manufacturers 33 years. For best results, re-power with Sealed Power motor parts. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ontario.

Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts

Buy more war bonds—and keep them! Pay \$3—get \$4!

not 2 ...
not 6 ...
but 26



SEALED POWER PISTON RINGS

BEST IN NEW CARS! BEST IN OLD CARS!

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MAY



New Car Prices Present Problem

NE of the problems confronting the car manufacturers is the size of the price tag that they will place on the new cars after they come from the production line. Indicative of the increased costs which they will have to face is the case of one company which ordered fender dies for its postwar model. The price quoted was \$100,000; whereas, the 1942 dies cost only \$60,000. Another company received a quotation of \$130,-000 for hood dies which before the war cost \$75,000. Labor costs are also much higher and if current strikes are any indication, they will be still higher before the first post-war car is sold. So it is entirely possible that prices may be even higher than the 25 per cent increase estimated by General Motors officials some months ago.

When pricing the new vehicles, consideration must also be given to the prices set by OPA on the used cars. If current prices are continued, owners will have to pay still higher prices for the post-war vehicles. The continuation of OPA is now before Congress and the recommendation of the National Chamber of Commerce is that the

Price Control Act be continued for one year beyond June 30 or six months after the end of hostilities, whichever comes first.

Rubber Situation May Be Altered

NE angle of the rubber situation about which there has been but little speculation in print is the possibility of shipments of crude rubber from territory recaptured from Japan. American troops in the Philippines have recaptured several large plantations totaling in excess of 300,000 trees. Contrary to expectations, the trees were not damaged; however, processing mills and other essential buildings were destroyed. The major sources of crude rubber-Malaya, Sumatra and Borneo-are still in enemy hands.

Whenever the subject of gas turbines is talked about, it creates a flurry of speculation in every circle. Pertinent facts about this war time development and the possibility of its automotive application can be found on page 30 of this issue.

What Are The Odds?

HE big problem that will confront ex-service men who plan to enter the automotive field, either as operators of an independent shop or as a car dealer, will be their chance of survival. Not knowing just how good or how bad business is going to be, it is impossible to forecast. However, statistics on what has happened in the past are interesting and illuminating. From data of the Census of Distribution for the years 1929 to 1939, it would seem that their chances are not particularly rosy. The first few years are of course the most difficult, and after two years trying about 25 per cent closed their doors and after four years, nearly one-half were forced to quit. When 1939 rolled around only 40 per cent remained in business. Of course, 1929 to 1939 covers the depression years, among the most difficult in the history of business. There is no data available whereby the age of the closing establishments may be determined. However, of those general types of retail establishments doing business in 1929 and which survived until 1939, the average age was 22 years.

Repairs Done At Your Door

NE post - war development which will be watched with considerable interest will be that of travelling repair shops. Undoubtedly, many mechanics and shop operators will purchase a surplus Army truck which has been fully equipped to render service in the field. Such vehicles should make excellent tow cars, and in rural areas they will be prepared to perform complete overhaul on tractors and other farm equipment, thereby eliminating the necessity of bringing them into the shop.

WPB Report Indicates Strain on Automobiles

WPB's report on the shipment of automotive replacement type storage batteries is of considerable interest at this time, not only because of the scarcity of batteries, but also because of the relationship of the number of batteries produced to the number of cars registered. The data is as follows: 1941-17,652,098 batteries; 1942-16,445,448; 1943-17,-104,964, and 1944 — 19,074,023. These figures cover the shipment of batteries designed primarily for the operation of starting, lighting and ignition systems or civilian motor vehicles, even though otherwise used with non-automotive machinery and equipment. The figures do not include military batteries. Of course, many of these batteries may still be in stock, and not all of them will find their way into automobiles. However, because of deterioration, stocks are usually small, so it is interesting to note that in the four years quoted, shipments have increased from 17.6 million to 19 million, while vehicle registrations have decreased from 34.3 million to 30.1

million. It's a striking indication of the strain that has been placed on the nation's automobiles.

Nice Girl Pretty Jack

THE shortage of passenger car jacks has been one of the difficult problems with which the industry has had to wrestle during the war. The shortage has been so acute that when N. T. Howard, of Middlesex Village Motor Co., Lowell, Mass., and A. Markus, of Markus Motor Service, Lowell, Mass., saw the cover on the April issue of Motor Age, the pretty girl received secondary consideration. The jack lying on the ground was of primary interest. In answer to both their queries, we don't know the source from which the artist obtained the jack and neither will he divulge the girl's phone number. However, it is interesting to note that WPB recently provided for the manufacture of three million passenger car type jacks.

More Shop Equipment To Help Servicemen

A UTOMOTIVE jobbers, shop operators and equipment manufacturers all were pleased with WPB's recent action permitting increased production of certain items of automotive maintenance equipment. This increase was based on the recognition of the important part that the maintenance industry is playing in keeping the transportation system functioning.

A poor exhaust system can plague a car and asphyxiate the driver if neglected. For informative views on auto mufflers and helpful pointers on proper care and maintenance, read the interestingly-written article on page 22 of Motor Age.

P.A.A.'s Fine Work Merits Approval

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S an example of what can be accomplished by a worthwhile association, the Pennsylvania Automotive Association, during the 1943 session of the State Legislature, was instrumental in the passage of bills providing the \$10.00 passenger car fee, reduced fee for half-ton pick-ups, reduced fee for dealer tags, temporary markers, repeal of the mercantile tax law and extension of the effective date of the Car Carrier Law. During the 1945 session they supported bills restricting the issuance of temporary tags, making increased truck weights permanent, and repealing the car carrier law. The latter has been signed by the Governor and the other two 1945 bills are awaiting his signature.

This is an exceptionally fine record, as none of the P.A.A. supported bills fly in the face of sound economic laws as is so often the case when associations enter the legislative halls.

Pontiac Sets Service Record

S an indication of what has A san indication of the happened in the automotive service field, Pontiac's record is particularly interesting. Customer labor sales in 1943 showed an increase of 21.6 per cent over 1942, and the 1944 record was 38.8 per cent higher than 1943. Parts sales showed a similar trend. The parts sales for 1943 were 16.9 per cent greater than the preceding year, and in 1944 the increase was 44.3 per cent. That is a wonderful record, particularly noteworthy since it was undoubtedly accomplished with fewer mechanics.

Van Winkle Motors, Pontiac dealer in Dallas, Texas, made a personal record by increasing cus-



tomer labor sales over 500 per cent in three years. The figures are as follows: January, 1942—\$2155; January, 1943—\$2939; January, 1944—\$9650; and January, 1945—\$11,383. Van Winkle was not asleep.

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Equipment Appropriation Accelerates Reconversion

NCE more the spirit of the entire industry rose on hearing that WPB had okeyed the expenditure of \$35 million in new construction and \$40 million for rehabilitation of tools, equipment and other facilities by the car factories. The necessity for speedy action has been at last appreciated, for with cut-backs of war production, the possibility of widespread unemployment has increased. Just how soon car production will start is still a guess, but at least the preliminaries have started. Many are guessing that production will start four months after victory in Europe, which is certainly vague. However, many are quite positive in stating that new cars will be coming off the lines before the end of the year. Checking with the various factories discloses that very little progress has been made since the turn of the year. The big stumbling block, until the latter part of April, was new machine tools. However, Krug has announced that the first major item in the reconversion program was \$50 million of such equipment. No decision has as yet been reached on the return of 150,000 company-owned

Meanwhile, word comes from England that the sales director of Vauxall Motors predicts that virtually all British manufacturers will be producing cars by the end of this year.

However, in both England and

America it seems quite definite that cars will at first be channelled to physicians and other essential users.

* * * * * * *

• • • Unfortunate

Due to the shortage of paper and resultant paper rationing, 22 pages of scheduled advertising were omitted from the May issue of MOTOR AGE.

The total number of advertising pages omitted for this reason during the first five months of 1945 is 96.4.

* * * * * * * *

Aircraft Estimate For Postwar Use

B. ST. JOHN, sales manager of Piper Aircraft, sheds some light on the number of aircraft that will be in use after the war. He based his opinion on the growth of the automobile business after the last war, and came to the conclusion that two years after the war there would be 55,-000 aircraft of all types registered. In 1939, Piper's best normal prewar year, they produced 1806 planes, and now have orders from their 44 distributors and 300 dealers for 1200 planes as soon as restrictions are lifted.

Compared to the 30 million motor vehicles that are now on the roads, 55,000 aircraft seems very small. Probably a better idea of the size of the aircraft business can be obtained by comparing it to the power boat field. In 1939 there were nearly 300,000 power boats registered in the United States, or nearly five times as many boats as the anticipated number of planes.

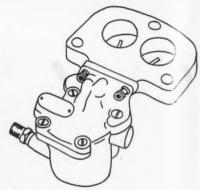
Tire Industry Deserves Praise

WITH the Nation's supply of natural rubber down to 65,-000 tons, we are fortunate that progress has been made in production of synthetic tires. The importance of slow speeds was emphasized if satisfactory mileage was to be obtained. While it is still necessary to conserve tires and rubber by adhering to wartime speed regulations, the performance of these tires on a test run on the Indianapolis track is indeed noteworthy. The test was a full 500 miles, and was driven by Wilbur Shaw at an average speed of 100.34 m.p.h. without a puncture or a blowout. It is comforting to know that the tire industry has provided such safe tires, and that we, as a Nation, can be free of any rubber importations in the event of another war.

Car Purchasers From Missouri

NCE again dealers are discussing the subject of selling post-war cars now and occasionally a dealer will make a concerted effort to get some signed orders. One Philadelphia dealer made a direct mail campaign, using a selected list of owners who had purchased their cars from him before the war. The returns were such that the effort was abandoned. Other dealers report owners bringing in their cars to be sold, and the money held in escrew until new cars are available. In discussing this subject, the fact that postwar cars will be rationed is always pointed out as a stumbling block to pre-production sales. However, the reluctance of customers to purchase something they have not seen has a greater retarding effect on building sales volume of that sort.





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Fig. 2. Injector mounted on flange between carburetor and manifold.

Alcohol-

been determined that alcohol or alcohol-water injection in many cases give better results than water alone. Alcohol is a little more effective than alcohol-water; however, the alcoholwater is less expensive and very satisfactory.

The alcohol used for injection can be either ethyl, methyl, or isopropyl. Tests run on both passenger car and truck engines indicate that a mixture of 50 per cent alcohol and 50 per cent water is the most satisfactory to use. Alcohol has a heat content of 12,000 B.t.u. per lb., and also supplies some oxygen, and consequently is a useful addition to the fuel charge. One important advantage of injection is that deposits in the engine are much softer and more easily removed when coolants are injected. Engines under full load operation for long periods of time remain remarkably clean.

Alcohol has an octane rating of 90-100 when used as a motor fuel, but seems to have a greater knock suppressing value when used as a blending agent. At the higher engine speeds, octane requirements of engines are materially decreased. Detonation is most pronounced at and near the speed at which the maximum torque is developed, and coolant injection is needed most within this speed range. Above the speed range the supply of injected coolant can be reduced or entirely cut off. In heavy duty service, it may be necessary to

N years past, injection of water into the combustion chambers of engines was an old practice. Recently, interest in this practice has been revived by its successful use on aircraft engines. This coolant injection used on aircraft engines has made possible remarkable bursts of power during take-off, and in flight and its value has been fully proved.

At the 1945 War Engineering meeting of the Society of Automotive Engineers, A. T. Colwell, R. E. Cummings and D. E. Anderson, all of Thompson Products, Inc., presented a paper on alcohol-water injection and

stated that coolant injection has the property of reducing the tendency of an engine to knock under heavy load but it is not intended to replace good anti-knock quality fuel.

The actual effects of alcohol-water when injected in the engine are not fully understood, but are believed to depend on both the high latent heat of vaporization of the coolants, and on their specific heat. In the past, it has been common practice to use a rich mixture to provide a cooling effect in the combustion chamber; however, this practice is very uneconomical. Through rigid tests it has

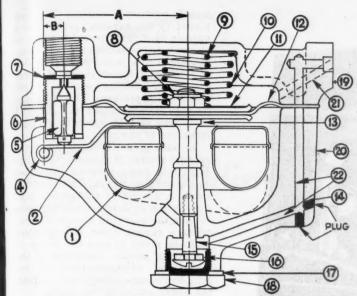


Fig. 3. Cross-section through injector.

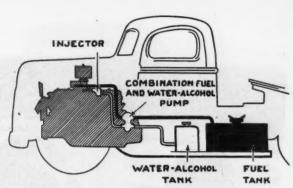


Fig. 4. Drawing showing method of installation on truck.

Water Injection

Increased power, cleaner engines and reduced detonation claimed for aircraft development which may be applied to trucks

continue coolant injection beyond this speed range to prevent pre-ignition under severe operating conditions.

Alcohol-water injection allows the use of a lower octane fuel than that normally required by the engine. It also allows the octane requirement of the engine to be raised for greater economy and performance. The question has been voiced that water injection might cause corrosion. In this connection it must be remembered that one gallon of water is produced from the combustion of every gallon of gasoline burned, so that water vapor is already present in the cylinders. Alcohol-water is injected only when the engine is hot, and therefore, would be completely vaporized, in which condition it does not promote

Fig. 3 is a cross section of an alcohol-water injector recently developed. It consists of the body casting 20, the cast cover 19, the diaphragm assembly 12, springs 9 and 10 forming part of this assembly, doughnut-type float 1, and the metering pin 15, which is actuated by the diaphragm. The diaphragm also acts as a gasket between the body and cover.

As the engine power is reduced and the manifold vacuum increases, the diaphragm is pulled upward and raises the metering pin with it, which in turn decreases the orifice area. During the first 30 per cent of diaphragm travel, only spring 9 is active. To meet the requirements of the engine, the first part of the flow curve must show an increase in flow rate, but a diminishing rate of increase. This depends on the manifold vacuum, the spring rate and the orifice area.

Manifold vacuum increases from a few inches of water to 25 inches of mercury, and the change in vacuum in combination with the pressures of springs 9 and 10 positions the metering valve so that the desired flow rate is obtained. Spring 10 becomes active only after the diaphragm has moved through 30 per cent of its range. This increases the spring rate, thereby decreasing this flow rate as the engine power is reduced, and finally valve 16 contacts its seat and shuts off the flow completely. As the engine power is increased the steps follow one another in the reverse order.

The interior of the injector body connects with the manifold through the inclined passage 21, which terminates on the face of the mounting flange. The mixture, after passing through the metering orifice, flows through passage 22, which connects with nozzles in the mixture tubes shown in Fig. 2. A simple nozzle with a single central orifice has proved to be most efficient. The injector mounts on a flange placed between the carburetor and intake manifold.

This description covers installations on existing vehicles. In subsequent development of this device it may be incorporated as a part of the carburetor unit. The mixture tank may be installed either above or below the injector. When installed above the injector gravity feed may be util-Where the installation is below the injector a pump will be required which in future designs may be a part of the fuel pump. Actual service experience shows that the capacity of the mixture tank need not be greater than 10 per cent of the capacity of the fuel tank.

Any metals or other materials that are contacted by the alcohol solution should be non-magnetic and non-corrosive. All non-metallic materials should be of such nature that they are not affected by the alcohol solution. General experience shows that water suitable for drinking is satisfactory for use in the mixture. In a few cases slime has been known to form which interfered with the proper functioning of the injector. In all cases this trouble was completely cured by using distilled water.

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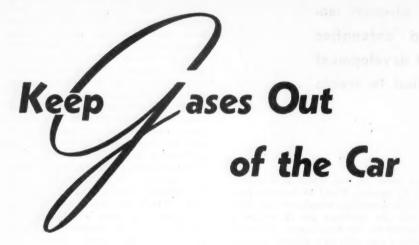
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Better health and more power when exhaust systems are overhauled to eliminate leaks and back pressure

By BOB TURNER

URING these wartime days where every possible effort is being made to stretch out a limited gasoline supply to obtain the most miles per gallon, it is highly important that the exhaust system is

examined to see if it is functioning properly and also is not pouring poisonous and obnoxious fumes into the interior of the car.

An important part in the proper performance and economy of an in-

ternal combustion engine is being played by the exhaust system, and a number of difficulties which result in sluggish performance may be directly attributed to a defective muffler. One of the most frequent causes of power-dissipation in the engine is excessive back pressure. The fault may lie with several causes and many of these may be determined by a visual inspection of the part.

As back pressure builds up in the exhaust system, it prevents the cylinders from being properly scavenged on the exhaust stroke. This condition leaves a portion of the burned mixture in the cylinders under pressure so that the incoming charge of fresh mixture cannot enter the cylinders until the piston is near the bottom of the intake stroke. Reduction of the amount of effective charge in the cylinders results, consequently cutting the power output of the engine.

Another rather common trouble is burned manifold and manifold flange gaskets. Adding to this, burned out heat risers may contribute to lost power and poor economy. If gradual clogging of the muffler is permitted to continue over a long enough period of time, it will cause the engine to only run for a few seconds before stalling entirely. Cause of this is due to the back pressure becoming so great that fresh mixture is prevented from entering the cylinders. If, after an engine tune-up, the car still seems sluggish, it may be due largely to a clogged muffler. Frequently the exhaust will have a sporadic hissing sound on acceleration in place of a clear smooth note.

Many cars today are equipped with exhaust deflectors on the end of the tail pipe for the purpose of deflecting the exhaust gas away from the body and bumper to prevent discoloration of the finish or plating. Carelessness in backing, frequently results in damaging the exhaust deflector and bending it down over the end of the tail pipe. This will also result in forming a certain amount of back pressure as well as producing a hissing sound from the exhaust.

When a condition of this kind exists, the tail pipe should be examined immediately for kinks at any point and replaced if necessary. Frequently on inspections severe dents or kinks will be evident in the exhaust pipe. These may have resulted by running over obstructions in the road, or driving across a high curb or crossing a depression. When exhaust pipes reveal these defects, they should be removed and replaced.

One of the most important points in visual inspections on exhaust systems is to look for leaks. The leaks may occur at the manifold gaskets at the engine, the exhaust manifold flange gaskets, rusted through or punctured exhaust pipe, exhaust pipe to muffler flange, rusted through muffler jacket or end plates, and rusted

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Shock Absorber repair at Grieger Garage at 402 E. Washington St., Fort Wayne, Ind.

And avoid tough sledding by providing highly specialized shock absorber and spring service

ACK in 1942 when tires were frozen, every government agency and automotive maintenance optrator cooperated in the drive to mainain even tire pressures, hoping to conserve our stock pile of tires. Unfortunately equal emphasis was not placed on the necessity of maintaining shock absorbers and springs as they make a most important contribution tire life by reducing the tendency of the tires to spin. By simply maintaining the pressures, but ignoring shock absorbers and springs, rough latiguing rides resulted and broken springs increased. Many car owners could not understand the reason. One aid he had driven cars for 25 years

without breaking a spring; and now, at 35 miles per hour, he had done just that! He couldn't believe it.

William Engelbrecht, service manager of C. A. Grieger Co., Chevrolet dealers of Fort Wayne, Ind., considered the problem from a constructive rather than from a pessimistic point of view. "Our eyes were opened to the fact that spring suspension service was probably the most neglected phase of automotive repair, and we decided to do something about it."

To avoid breakdowns and tie-ups, Engelbrecht inaugurated a campaign to service shock absorbers. He launched an educational program designed to familiarize the motorist with the spring suspension and shock absorber action which is so vital to easy-riding qualities and long tire life.

The educational program began by pointing out that most motorists want a purring motor, good brakes, a generator which will maintain an adequate battery charge, assured starting, proper temperature control, correct oil pressure, smooth clutch action and an accurately set carburetor.

But how many drivers, even the "experienced" ones, will ask whether or not the spring suspension and the shock absorber action has been checked? Not many, according to Engelbrecht. The motorist will continue to drive an otherwise perfectly adjusted car, but with the riding qualities of a concrete mixer, ignorant of the cause of his tired back after a day's driving.

The cause of this neglect is evident. When the owners complains of barnyard noises under his hood, the hood is lifted and the cause investigated promptly. The spring suspension unit

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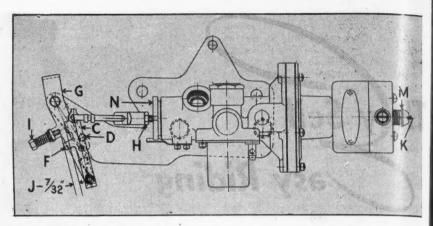
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Electromatic clutch control valve showing principal points of adjustment.

Taking an odd customer in his stride, Pop O'Neil points out to Tommy that a mechanical problem can be puzzling, yet corrected by employing proper steps in this, the 41st article of a series

Slipping Out of Automatic | lutch Trouble

"THAT's the best news I've had in months!" exclaimed Pop O'Neill as he slapped the desk top with the letter he had been reading when Tommy Winters walked into the shop office.

to the shop office.
"Somebody pay an old bill?"
asked Tommy.

"No, this is a letter from Chuck Masters, the kid that used to have your job. He's been in the Marines for a couple of years. I didn't hear from him for a long time and I was gettin' a little worried. But he's okay now. Just got outa the hospital. He stopped a machine-gun slug on Iwo Jima."

"He's lucky at that, I guess."

"You can say that again. He's been in half a dozen engagements and was wounded twice. But he wishes he was fightin' for Tokyo right now."

Tommy was hanging on Pop's words, his eyes bright with admiration. "Gee, I'd like to be with him."

"Don't worry about it," said Pop.
"You'll be in the service soon enough."
He folded the letter and laid it in a
desk drawer. "Now, what was it you
came in to see me about?"

"Everbody else was busy, so Larry told me to see what this customer wanted. He says his clutch slips after he shifts into second or high. I never heard of anything like that."

"What kind of a car has he got?"
"A Packard. I think it's a '41."

"Ah, now we're gettin' somewheres."

Tommy's eyes widened. "But you haven't seen it yet."
"Startin' with '41," began Pop, ris-

ing, "they put an Electromatic clutch on the Packard. Sometimes when it gets out of adjustment, it slips. Wait till I put on my shop coat. Have to make an impression on these Packard owners!"

Tommy laughed.

"What's so funny?" asked Pop.
"Oh, boy," grinned Tommy. "Wait
till you see this owner!"

The customer was pacing back and forth impatiently beside the car when Pop and Tommy walked up to him. His swarthy skin identified him as a foreigner. His worn coat and trousers shone here and there with grease and were too tight for his big, well-fleshed frame. He spoke fair English except for an accent.

"Fix it up fast, will you?" he pleaded. "I'm late for work already."

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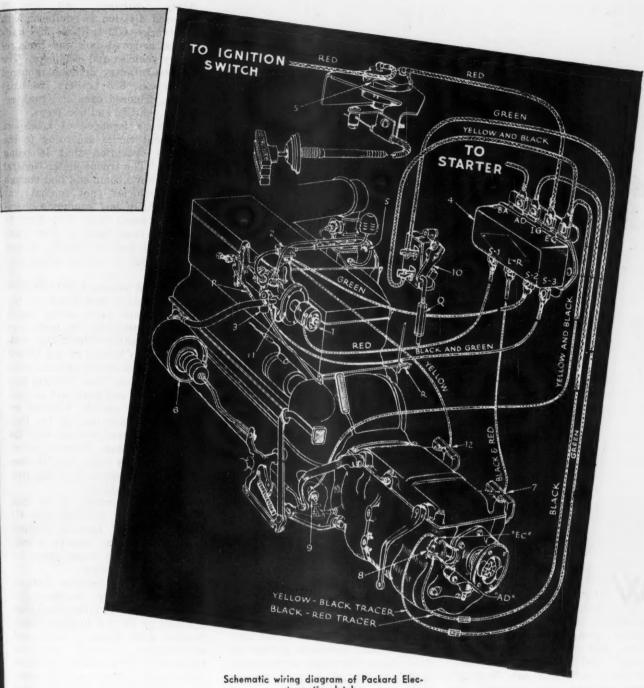
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tromatic clutch.

"What seems to be the trouble?"

"The clutch is bad. Slips all the time. My old car only cost a hundred dollars. But the clutch never slipped."

"I think we can fix it up for you," said Pop confidently. "Just leave it here. "We'll have it ready for you tonight."

The owner gesticulated wildly. "How can I get to the plane factory?"

"What's all the hurry at the plane factory, they're closed up tight because of a strike."

"Sure, I know, I'm one of the pickets," answered the man.

"Well," Pop remarked, more than a little nettled, "there's a bus runs right past the plant."

"I work hard all day. I can't fight that crowd on the bus!"

By J. EDWARD FORD

"If worst came to worst," said Pop, "you could stay home.

"Now get me right, I don't want to interfere with war production. But I can't upset my whole shop, neither. Not as long as buses still run out to the plant."

"Then you won't fix my car while I wait?"

"No."

The customer shrugged. "All right, I'll take the bus."

When he had gone, Pop turned to

Tommy. "I never talked to a customer like that before. But these home-front heroes get under my skin. Too good to ride a bus! In the old

country, he'd walk."
"What will I do with the car?" asked Tommy.

"Park it on the lot till you get a free minute. Then let me know and we'll see about it."

It was after 3 o'clock before Tommy brought the Packard back to the shop and called Pop.

"You never worked on one of these Electromatic clutches before, did you?" Pop queried.

Tommy shook his head. "I never even saw one."

"Then maybe we'd better try to get an idea how it works." Pop rested (Continued on page 50)

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The 21/2-ton, six-wheeled mobile repair shop bringing in a jeep.



ITH more than 1,000,000 vehicles the United States Army has flung the greatest line of trucking operations in history completely around the world, and naturally the maintenance and servicing of these vehicles is a colossal job. Most of these vehicles are operated by American soldiers, but about onethird of all the equipment is procured for other United Nations. The procurement, operation and care of those retained by the United States Army is the responsibility of the Ordnance Department.

These operations take in about 20 different general types of transport vehicles, ranging from the tiny jeep to the 40-ton truck-trailer, tank transporter, affectionately called the "Dragon Wagon" by Ordnance soldiers which is used to bring back seriously damaged tanks from the battlefronts to repair stations in the rear.

The 2½-ton, six-wheeled Ordnance maintenance truck, represents one of the more unusual types of Army vehicles, but nevertheless, it plays an important part in Ordnance operations. This is, in reality, a mobile repair shop that operates in the combat zone close behind the front lines. There are several types that are equipped with special tools and equipment to do repair work on everything from watches to big howitzers. The eight different categories are: small arms repair, automotive repair, artillery repair, instrument repair, welding, machine shop, electrical repair, and instrument bench. Special care has been taken in designing and outfitting these trucks so as to carry the maximum number of tools and spare parts, while leaving sufficient space to operate the drill presses, shapers, battery chargers, vises and other repair equipment.

Transport equipment is scattered throughout the Army with different kinds of organizations receiving varying quantities of vehicles and parts, all under the supervision of Army Ordnance. An average armored division is equipped with 639 trucks, 602 trailers, 555 half-tracks, armored cars and tank recovery vehicles and 471 jeeps. The average infantry division required 777 trucks, 623 trailers, 18 half-tracks, armored cars and tank recovery vehicles and 658 jeeps.

Overseas issuance of transport equipment varies according to the type of operation that is being planned. The troops under General Eisenhower's command had enough supply vehicles (not combat), at the height of last summer's operations, to reach from New York to San Francisco back to New York and again back to Omaha, placed 50 yds. apart in regular convoy formation.

Ordnance handles 2,000,000 parts orders monthly, and ships out 10,-000,000 spare parts every month to help to maintain the more than 2,500,000 vehicles, including combat, with the armies of the United States and those of other United Nations. More than 500,000 tons of equipment and parts are shipped overseas each month. Vehicles account for almost half of the Ordnance total procurement and the procurement and distribution of spare parts for these vehicles constitutes the great bulk of the Ordnance spare parts job.

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Parts requirements in the field run high. For example, the 471 jeeps in one of General Patton's armored divisions require a minimum of 473,826 spare parts for one year of operation.

Thousands of General Patton's vehicles which were in almost continuous operation from the breakthrough at St. Lo to the German frontier were found to be in need of complete overhaul, requiring hundreds of thousands of additional spare parts. Many of the maintenance trucks previously described followed closely behind General Patton's army and kept hundreds of vehicles in operating condition throughout the campaign.

Ordnance soldiers operating overseas also continue to turn in astounding records of their repair activities. An Ordnance heavy automotive maintenance company in Belgium, in the thick of the fight against Field Marshal Karl von Rundstedt's forces, is achieving a new record in the maintenance and repair of United States Army equipment.

According to an overseas report up to the end of January, the company had rebuilt more than 10,000

(Continued on page 72)



by ADDIS KEAN

CONCLUDING ... "The Great Crate Mystery"

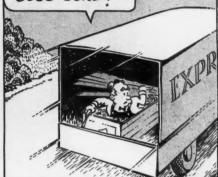
PART II. LAST MONTH WE LEFT CHARLIE, NAILED IN A CRATE, ON HIS WAY TO THE RAILROAD STATION ... POP AND GI WERE TRYING TO GET THERE BEFORE TRAIN-TIME, TO LET HIM OUT ...

YOU AND ALVIN MUST HAVE BEEN CRAZY TO NAIL CHARLIE. IN THAT CRATE GOSH! POP, WE DIDN'T EXPECT THE EXPRESS MAN TO COME BEFORE WE LET HIM OUT!



MEANWHILE - LET'S HAVE A LOOK AT POOR OLD CHARLIE

DRIVER IN MY POCKET THIS IS ALVIN'S IDEA OF A
GOOD JOKE!



HERE COME POP AND GI!
I'LL NAIL THE LID DOWN AND
HIDE IN THAT BAGGAGE CAR
AND THE JOKE 'LL BE ON
THEM WHEN THEY OPEN IT!



STOP! THERE'S A MAN
IN THAT CRATE!

GET IT
OPEN,
QUICK!

HE'S GONE !

LOOKS LIKE THE JOKE'S ON US. HE MUST HAVE GOTTEN OUT AND IS HIDING SOME WHERE!



GOSH THEY CLOSED THE DOOR AND THE TRAIN'S STARTING



CHARLIE JUST CALLED UP AND SAID HE WAS IN THE BIG CITY AND WANTED US TO SEND HIM MONEY TO GET HOME

DON'T SEND IT. HE'S RIGHT HERE IN TOWN TRYING TO GIVE US A SCARE



SEVERAL HOURS LATER

●!! ②☆● ※ # WHEN
I GET MY HANDS ON ALVIN
HE'S GOING TO NEED A
CRATE, PERMANENTLY



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More Power from Better als

Improvements in engine valve design have kept pace with better fuels and higher compression resulting in higher engine output

THE improved performance of the modern internal combustion engine is usually attributed to the use of increased compression ratios and the use of high octane fuel. However, unless improvements in engine valve design had not kept pace with better fuels and higher compression,

engine output would not have advanced. As an example of this tremendous increase, a two hundred cubic inch passenger car engine in 1925 developed about 45 h.p. Today that same size engine develops 95 h.p.

For successful operation engine valves must be made of steel having the physical and metallurgical characteristics to resist high operating temperatures often in excess of 1200 deg. F. It must also be able to withstand the corrosive effects of the burning fuel charge and in addition the operating stresses imposed on a hot valve.

valve.

As intake valves are automatically cooled by the passage of the incoming charge around its head and upper stem, they are not subjected to such severe strains as the exhaust valves.

Consequently they can be manufactured of steel having less exacting physical qualities.

As the severity of the duty to which valves were subjected increased, valve materials were changed and in addition the design of the valve also im-

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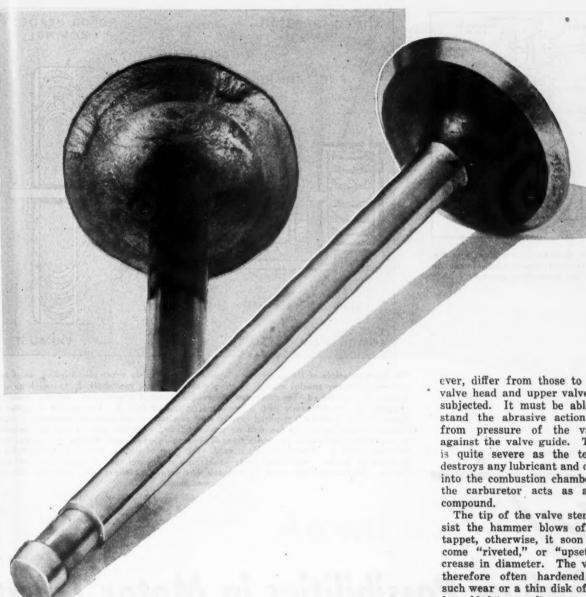
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proved. Early in the history of the industry, valve heads were frequently made of cast iron. Ford Model T valve heads were of that material. Ordinary drop forged carbon steel valves were also used by many manufacturers. Today's valves are of alloy steel such as tungsten, silicon and chromium, cobalt chromium, nitrided nitralloy and, for extreme heavy duty such as is encountered in aircraft engines, the valve heads and stems are hollow and filled with salt.

Such alloys withstand the intense heat generated during combustion and also the heat of the exhaust gases which impinge on the valve head and upper valve stem. The exhaust gases are even more destructive to the valve than the heat of combustion as they

have what is known as a "reducing" effect on the steel. The elements forming the steel tend to separate. In addition, there is what is referred to as "cold corrosion." This is the acid-like action of the mixture of the exhaust residue on the valve with the moisture of condensation.

The valve must withstand not only the heat and chemical actions just outlined, but also the mechanical shocks imposed by the action of the valve spring. As valve operating temperatures are often in excess of 1200 deg. F. it is necessary that the valves have considerable "hot strength," otherwise the valve head would soon become distorted.

The lower valve stem also operates under severe conditions which, how-

ever, differ from those to which the valve head and upper valve stem are subjected. It must be able to withstand the abrasive action resulting from pressure of the valve stem against the valve guide. This action is quite severe as the temperature destroys any lubricant and dust drawn into the combustion chamber through the carburetor acts as a grinding

The tip of the valve stem must resist the hammer blows of the valve tappet, otherwise, it soon would be-come "riveted," or "upset" and in-crease in diameter. The valve tip is therefore often hardened to resist such wear or a thin disk of hard steel is welded to a soft stem.

From the foregoing, it can be seen that different parts of the valve are subjected to types and degrees of stresses.

Some manufacturers therefore make the valve head of one type of steel, while another type of steel is used for the stem. Such valves are often referred to as a "two-piece" valve. Actually this is a poor term and not an accurate description of the valve; it implies that the different parts of the valve are mechanically joined together. Actually the two parts of the valve are joined by a fusion weld so as to form a single piece. In this bimetal or composite construction, the head of the valve and upper stem are forged from a steel suited to withstand high operating temperatures, corrosive effects of the burning fuel charge and the exhaust flame and also the operating stresses imposed on a hot valve. The lower stem is formed of a type of steel designed to resist abrasive wear and also to resist the effects of impact.

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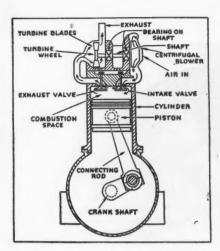
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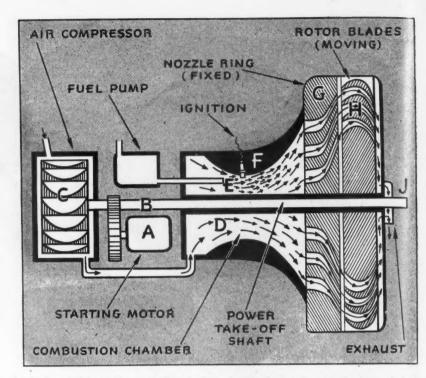
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Application of turbo supercharger with diesel. Turbine turns blower which forces air into combustion space.



The basic principle of the gas turbine is shown in the above schematic drawing, which does not represent any special make. Starting motor, A, spins mainshaft, B, to which air compressor, C, is attached. The compressor forces a continuous stream of air into the combustion chamber, D, simultaneously with a continuous supply of fuel, E. The mixture is ignited by spark plug, F. Ignition is required only to start combustion, after which combustion is a continuous process as long as fuel and air are introduced. Exhaust gas created by combustion is forced through stationary nozzle ring, G, impinging upon rotor blades, H, causing them to rotate shaft, B. Power take-offs is at J. This type of turbine would be designated as a single-stage model. Multi-stage units would have additional sets of nozzle rings and rotor blades. Inexpensive fuels, such as kerosene, low octane gasolines, etc., are used with type of power plant.

Gas / urbine Pos

urbine Possibilities in Motor Trucks

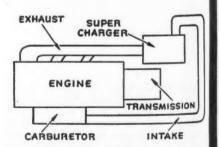
War time power plant development provides interesting discussion

ORLD WAR II has projected jet propulsion on a grand scale, much like an installment of a Buck Rogers comic strip. Jet-propelled fighting airplanes zoom at fantastic speeds—probably up to 700 miles per hour—and the Nazi V-1 and V-2 Robots also are examples of jet propulsion.

Can this have any interest to the designer and operator of motor trucks? As to jet propulsion—NO! We don't expect to see it on trucks. However, jet propulsion in fighting planes uses a gas turbine—a form of

internal combustion engine that burns fuel much the same as does your gasoline or diesel engine. And there is a possibility that a form of gas turbine may find its way into motor trucks of the future.

Experts tell us that the inventors have known about gas turbines for approximately 100 years. They couldn't get them to work because there were no materials available at that time that would stand the terrific heat inside the machine. More recently the gas turbine became practical because we have metals today



Schematic diagram showing use of supercharger with the gasoline engine

that can stand a lot of heat and pounding.

By the looks of things, the only possible chance of using the gas turbine is not as a prime mover to replace your gasoline or diesel engine, but as a turbosupercharger, which is, in effect, a gas turbine taking power from the exhaust pipe of the engine

(Continued on page 78)

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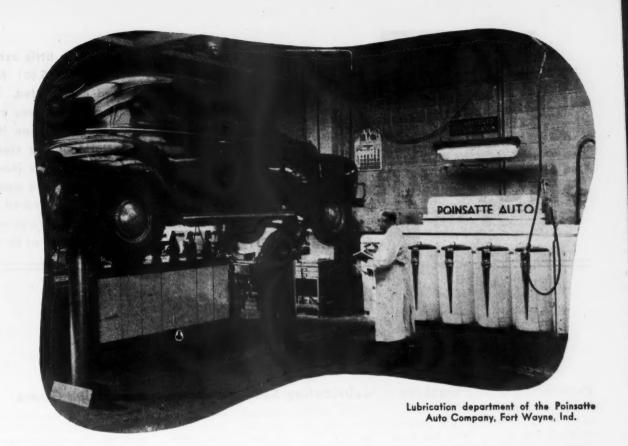
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OR 26 years Automotive Service helped to build up car sales volume for the Poinsatte Auto Co., Chrysler and Plymouth distributors, of Fort Wayne, Ind. Just as service also contributed to the steady growth of the firm for over a quarter century, it has been carrying the organization through the wartime crisis on a profit-earning basis.

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In fact, outside of an occasional sale of a used car, service and parts sales are the only source of income, according to Service Manager Bill Poinsatte. One of the best things they did to maintain volume was to step up maintenance service to assure the nearest possible approach to uninterrupted use of the customers' aging cars. For example, this intensified check-up program has been, and still is, the biggest factor in maintaining a service volume averaging 700 repairs or service jobs a month, ranging from a minimum lubrication charge to several hundred dollars for

complete wreck-rebuilding jobs. These figures do not include towins. In one month last summer, the company handled 100 tow-in jobs, but in winter these run as high as 200 jobs in a single month.

The management believes that a profitable shop is maintained through repeat service jobs, and that these come through good performance of the cars after they leave the shop. They also believe that good perform-



Car dealer uses super service methods to build shop volume and customer good will

ance is gained through a program of preventive maintenance. This is the strongest point, and the company emphasizes the customer's advantage in having more complete check-ups combined with careful inspections of all operations to prevent break-downs. This saves labor and helps the company turn out more service jobs that will increase the good performance objectives.

For example in one advertising campaign which is typical of the company's schedules, some 40 points of service were explained. The highlights in this program which keeps the shop filled with service orders are: (1) Brake inspection and adjustments. (2) Test clutch action, gear shift levers, steering gears and adjustment made when needed. (3) Check operations on road to observe engine performance, rear axles, transmissions, propeller shafts and check for back-lash. (4) Important, check for unusual noises that give warnings of major trouble ahead, if

(Continued on page 84)

SHOP KINKS

Here's your chance to pick up a little extra money. We'll pay five bucks (\$5.00) for every Shop Kink accepted and printed. So send 'em in to us-some short cut you use in doing a job easier and faster than the other fellow-some special tool you made when you couldn't buy one to do the joband we'll do the rest. Incidentally we won't accept any that have previously appeared in any other automotive publication. We've accepted these for this month's edition of M. A.

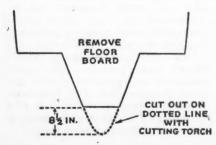
Preventing Blown Gaskets

We had a number of very trying cases of cars blowing head gaskets although the cylinder heads had been planed. We tried a number of methods to overcome this condition without much success until we worked out the following idea:

Locate the exact spot where the gasket failure occurs on the cylinder block. Then, using a small center punch, raise the metal on the block around this spot. The raised metal can be dressed off with a file. We have found this method cured the most stubborn cases.-Lloyd Lubbers, 2263 Prince St., Dubuque, Ia.

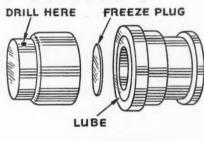
Removing Transmission

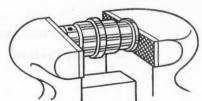
I have tried various ways of removing the transmission to install a clutch on a 1941 Willys Americar equipped with overdrive, and I find the easiest way to do this job is to remove the front seat and take out the floor boards. Then with a cutting torch, cut a V-shaped piece out of the pan back of the floor board. This allows removal of the complete assembly without any interference. After the job is completed, cut a piece of sheet metal to cover the opening in the pan and hold in place with metal screws. -Glen L. Bowman, 1139 Salem Road, Albany, Ore.



Lubricating Sealed Bearing

The clutch throwout bearing in Chevrolet cars and trucks from 1938 to 1942 are not made to be lubricated and when a mechanic does a clutch overhaul, he sometimes finds the clutch bearing in good shape with the exception that it is dry of grease. These bearings can be salvaged or saved by packing them with the tool





Drill a small hole in hub cap as shown and fill cap with wheel bearing lubricant, smear freeze plug and face of bearing with grease, install freeze plug in center of bearing and place hub cap over outer face of bearing race, set in shop vise and force air into hub cap with air nozzle. Short puffs are best. The new grease will force the old lubricant out the opposite side.—Bob Scudder, Service Manager, Chitwood Motor Co., Hot Springs, Ark.

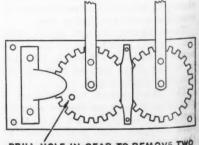
Protecting Gears

We have recently had a number of Ford cars and trucks come into our shop with the starter gears very badly rusted. These vehicles are generally used on short runs and operate cold. After a lot of hard work and a great many headaches, we have found the following method to be very effective in overcoming this trouble:

First, clean and open the louvres in the clutch inspection plate. Drill three 1/2 in. holes in the lower half of the Bendix cover on the oil pan. Then drill three more 1/2 in. holes in the left side of the flywheel housing. This provides sufficient ventilation to prevent the formation of moisture.—Ralph K. Smith, 5801 E. Second, Long Beach, Cal.

Replacing Pinion Rivets

When installing Ford window regulator pinion kits, it is not necessary to remove the larger gear, guide, spring and rivets if you drill a hole in the larger gear through which you can punch out and replace the pinion housing rivets. - Orville Thompson, 512 Maple Ave., Ridgeway, Pa.



DRILL HOLE IN GEAR TO REMOVE TWO PINION HOUSING RIVETS UNDER GEAR



Lovely Toni Atwater, this year's queen of the annual Las Vegas, Nev., Helldorado, gets ready to rope from her trick horse, Reina. Toni was selected from among a large group of local girls and she will lead all the mounted parades on her trick horse and will perform in this Mardi Gras of the West.

One of the favorite stops of the Cooks' Tourists in peace time was the castle, built in 1710, of Prince Arenberg and his wife, the great granddaughter of England's Queen Victoria. Here some of our soldiers give it the once over on their way to Berlin.





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Even the kids have been affected by gas rationing, as evidenced by Johnny Roberts, of Detroit, who is learning how to do without gasoline. He built this as a scout project and doesn't need any gas coupons. He goes when the wind blows!

This Mexican "cargaderos" or deliveryman is shown as he carries a heavy, bulky wardrobe. This form of cartage affords a graphic example of why Mexico will need thousands of automobiles and trucks after the war to carry on commerce and promote trade.



M.P. Private Don Lemon, of 811 S. 20th Ave., Yakima, Wash., injects a little life into his tedious task of directing traffic in Viersan, Germany, by using a manikin assistant at his corner post. He is a member of the U. S. Ninth Army.



While automobile mechanics everywhere are tuning cars for springtime driving, Percy, the chimpanzee, at the Philadelphia Zoo, gets a little tune-up medicine in the form of sulphur and molasses.

Myra Gwynn receives a welcome look from the high-collared dandy as she climbs into the early Dayton cycle car in front of Crawford's saloon, during the opening of the exhibition of early automobiles and a typical street of the 1890's at Cleveland, Ohio. Don't worry, Myra, it's only a dummy!

Here is a charming study in contrast. Luella Hammond, representing the old fashioned girl, holds up a high pressure tire of 1915 vintage while Joyce Forbes seated on top the latest "ice-grip" B-29 bomber tire which required enough Nylon to make 300 pairs of stockings.



























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Bill Toboldt, Editor, Motor Age

THE READERS'.

CLEARING HOUSE



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OFFICE

On a 1937 Pontiac 6, the motor has been completely gone over, rebored, new pistons, rings, wrist pins, bearing inserts, carburetor, distributor, wiring, coil and condenser, thermostat, water pump, oil filter, fuel pump, spark plugs, and radiator core, the valves checked and ground, guides and springs checked, a new 150 amp. battery installed, gas line checked for leaks, and timing checker.

This car has no snap or pep. It is very slow, no pickup until about 40 m.p.h. in high, then a surge of power can be felt. What is the possible cause of this motor acting this way? There is little oil consumed. Gas mileage is about 12 miles to the gallon.—A California Subscriber.

THERE are several possible explanations for the lack of pep at slow speed. First of all, I would check the vacuum advance unit on the distributor. It is possible that this unit is not operating to advance the spark at slow-speed acceleration. The correction can be made by either replacing the diaphragm or the complete unit.

Next I would check the valve timing. It is possible that the chain has worn or stretched enough to make the valve timing late. Then, too, while the overhaul job was being done the mechanic may have unintentionally changed the valve timing. A compression test should be made as a check of the work done. The idle system of the carburetor should be checked, even though the present carburetor is a new replacement. Also check the accelerating pump operation.

One of the above conditions is doubtlessly responsible for the trouble,

and I am inclined to favor the theory of a defective vacuum advance unit at the distributor.

Clogged Carburctor

I am having trouble with a Stromberg carburctor on a C17 Chrysler. Jets are clean and apparently equal in size, but, on the inside jet, little if any gas flows into the carburetor throat while the other jet lets gas flow freely. Will appreciate any suggestions you have, as to what our trouble might be.— A New Jersey Subscriber.

THIS car is equipped with a Model EE-22 Stromberg carburetor and, if you are referring to the main discharge jet, the difficulty can be caused by a clogged main metering jet. On the other hand, if you are referring to the discharge from the accelerating pump, which will be noticed as you look down into the carburetor, the discharge would occur every time the throttle is opened. If you don't get a spray of gasoline from each of the pump discharge jets, it is probably caused by a stuck pump inlet valve, which is similar to a ball check and is located in the lower part of the float chamber. It might also be caused by a clogged economizer valve.

If you are referring to the idle discharge, this should be easily overcome by removing the idle adjusting screw and blowing the passage out with air. It may be that you slipped up somewhere when you cleaned this carburetor and I suggest that you remove it once more and disassemble and thoroughly clean all the jets and passageways.

Insufficient Power

One of our customers has a Diamond T, 1937 Model 244-D, with a Hercules JxB motor which he complains has insufficient power for his needs. Motor has been checked for timing, compression, etc., and a new carburetor was installed. Truck has straight exhaust so clogged muffler is out.

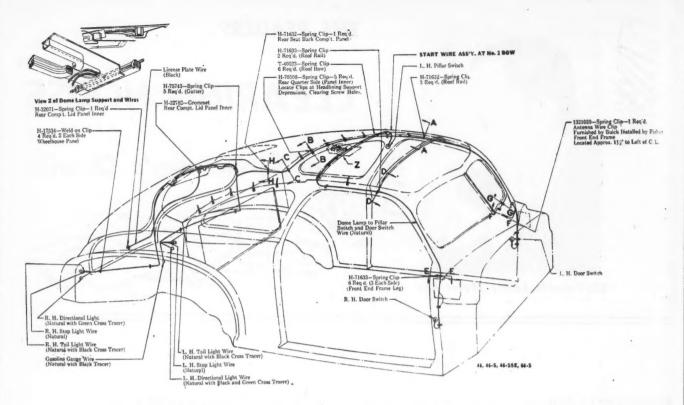
Since truck is used for oil field hauling we are inclined to believe motor is too small and wish advice on the following:

Raising compression by planing off head. Will bearings stand up under added load? Spark is manually controlled. Will vacuum controlled advance help? How much can we take off?

We have been told that JxB and JxC blocks are the same; the first being bored 3% in., the latter 3% in. If this is so, could we rebore to 3% in? Will bearings stand this load? Will present values be large enough and how about carburetor and manifold?—Stanley R. Booth, St. Marys, West Va.

BY raising the compression ratio on your Hercules JxB engine you will undoubtedly increase the power. In general, about .060 in. is all the metal you can remove from the head without getting into trouble; however. I would like to point out that with today's poor gasoline you might get into serious pinging trouble if you raised the compression ratio. After the war when we have good gasoline once more, you can raise the compression ratio without any difficulty; however, today I think your best plan would be to completely overhaul the engine and make sure that rings,

R AGE



Body Wiring Diagram, 1942 Buick, Models 46, 46-S, 46-SSE, 66-S.

valves, timing and carburetion are all in perfect condition.

I have no information regarding the JxB and JxC blocks. My guess is that the have done more than just bore out the block to a larger diameter. Most likely they have made the necessary alterations to insure adequate thickness of cylinder walls.

Increasing the compression ratio does not materially increase the load on the bearings. It's engine speed and bore diameter which have to be considered. The higher engine speeds in particular are hard on bearings as mathematically the bearing load increases with the square of the engine speed.

Oil Consumption

Would you kindly give me the dope on how to set the oil pressure in relation to the valve that is operated by the choke control rod of a 1931 Model 833 Standard 8 Packard?

This car used eight quarts of oil in 150 miles of driving. The oil gage goes over past 50 at 25 m.p.h. I have released the tension on the by-pass valve in the pan and checked the ball and spring. I can cut down the oil pressure when I pull out the choke rod. There is an adjustment on this valve at the rear of the cylinder block but I do not know how this is supposed to operate.—A Wisconsin Subscriber.

THERE is no adjustment provided for this valve. I feel confident this is not the cause of your trouble because this valve operates only when the choke is pulled out, and serves to admit a supply of oil direct to the piston skirt. If you should relieve the spring tension of this valve so that it would operate at normal driving speed with a warm engine, you would simply be adding an auxiliary supply of oil to the pistons and this would result in increased oil consumption. A consumption of eight quarts to 150 miles of driving, as indicated in your letter, is certainly excessive, and you don't want to do anything that is going to increase this rate.

The answer probably is that this engine is in need of a thorough overhauling. I suggest a pressure test of the bearings to determine fits, and I believe you will find that they are pretty loose. The rings, too, are undoubtedly bad, intake valve guides worn, pistons loose, etc. Certainly an internal inspection is indicated on this job before any work is attempted. And, most important of all, I'd check to make sure that the oil is not leaking out onto the road.

Breaker Points

I have a 1941 Plymouth P-12 and have driven it about 32,000 miles and have had to put in four sets of points in that time. No one seems to be able to find the cause. A new condenser was installed, coil checked, voltage regulator checked and all seem to be in fine shape. Have never burned out any lights or had any other electrical trouble at all. Have also used different brand points at times with no better results.—S/Sgt. Arnold E. Eulert, Yuma, Ariz.

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N general, the only reasons for excessive burnings of breaker points is a defective condenser or too high voltage. In your letter you say you have checked both of these points and have not located your difficulty. However, I am inclined to believe that the trouble still might be found in the voltage regulator because these units are so often checked incorrectly.

There is also a possibility that the trouble might be in a defective coil.

It boils down to a question of doing all the work you have done over again because it would seem that somewhere, some error has been made.

Hard to Start

I have a customer with a 1937 Dodge that won't start after it stands for about three days unless you prime it. What should be checked on this car to remedy this situation: We have installed new fuel pump, flexible gas line and needle seat.—A Wisconsin Subscriber.

NASMUCH as you have installed a new fuel pump, flexible gas line and needle valve and seat, I would suggest that you make a careful check of the battery connections and all electric connections in the primary ignition circuit. It is also advisable to make certain your customer is using S.A.E. 10 or S.A.E. 20 W oil.

The reason for these suggestions is that the battery may not be in the best condition and, after standing a few days, it may have sufficient current to crank the engine, but does not have sufficient power left to give a good hot spark at the plugs. In connection with the plugs, I would suggest checking the points, making sure that the gap does not exceed .025 in.

I would also recommend that you make a careful check of the automatic thoke to make sure that it is closing fully when the engine is cold, and opens after the engine is hot.

lack of Acceleration

We have a 1936 Pontiac 8 which has a hestitation at low speeds. You can be driving along in high gear and step on the accelerator and it would rather stop than go ahead. I have rebuilt the carburetor and installed new plugs, new points, checked the compression and the timing.

I also have a 1942 Pontiac 8 which acts the same way and I installed a new carburetor but it didn't do any

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A 1941 Buick has the same trouble. Have changed the accelerating pump in the carburetor and have installed new plugs and points, but doesn't neem to help it a bit. I would like your suggestions on these three cars. -Holman's Garage, 425 S. Poplar, ostoria, Ohio.

N reference to the trouble you are having with acceleration on the 1936 and 1942 Pontiacs and the Buick, I would suggest that you remove the fuel pump and have the unit checked thoroughly for pressure. A cracked diaphram may be causing your trouble.

I would also check the carburetor accelerating pump to see that this is supplying the proper amount of gasoline necessary for low speed acceleration.

Tell-Tale for Trailer Lights

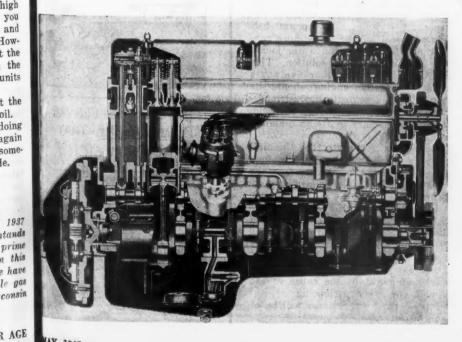
I saw a tractor trailer with body lights hooked up so that when all the lights went out your directional lights would go on and the red light in your directional control box above the dash on the steering post would stay on until you have found the trouble or if you turn off your light switch.

I would like to know how the setup is wired .- Vincent Mastrianni, 740 Catherine St., Utica 3, N. Y.

HAVE been trying to find several methods of connecting trailer lights with a tell-tale on your instrument panel.

The only satisfactory method I have been able to find, and it is also simple, is to use an accurately calibrated ammeter in series with a line to the trailer. Naturally, maximum reading would be obtained when all the lights are on, then smaller readings will indicate that some of the lights are out and if a short develops and blows a fuse you will, of course, get zero reading.

For your information I have drawn a simplified diagram of the connections.



Unwelcome Smoke Screen

I have read your magazine and enjoyed and profited by many suggestions. I now have a problem which is a real sticker to me.

I have a 1935 Pontiac Six which has been completely overhauled. It has new rings, carburetor, timing chain, points, condenser, coil, overhauled fuel pump, and the valves have been ground twice to see that they weren't sticking.

This car still smokes and backfires through the muffler when you step on the accelerator.

What else could possibly be checked to solve this puzzle? It smokes so I can't see to drive it. Thanks for any information .- George L. Kucko, Canton, Wis.

YOU certainly are having considerable trouble with that 1935 6-cylinder Pontiac which you have just overhauled.

I would suggest that you recheck the valve timing and also the heat riser in the manifold as this may be burned through. You might also make an oil test on the main and rod bearings to determine the amount of throw-off from the bearings. If the throw-off is excessive it would cause the smoking condition which you now have in the motor.

Timing Trouble

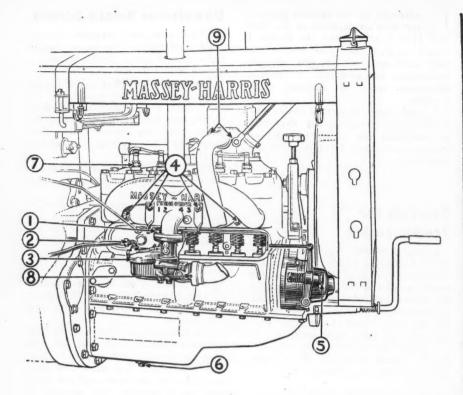
Recently in giving a 1938 Buick Special a tune, the owner stated that it was acting up again. Looking at the engine I found that the ignition timing had been retarded and there was an uneven running condition similar to being choked. It did not need a valve job.

These symptoms indicated to me that the timing chain had slipped. The car used every day couldn't be left for a couple days for me to check the valves. Is this a common occurrence on this type of Buick and if so, is my diagnosis right in assuming the chain has slipped? The car has upward of 100,000 miles. Would appreciate a reply as soon as you can .- A Paulsboro, N. J. Subscriber.

YES, it is quite possible that the timing chain on a 1938 Buick jumped a few teeth throwing both valve and ignition out of time. When you consider that this car has 100,000 miles on it there is undoubtedly considerable wear on the timing chain and sprockets; however, with the amount of mileage on this car it is not unusual. As a matter of fact, during this war period when cars are being driven much further than usual, timing troubles have increased.

Of course, before installing a new chain you should check the timing to make sure your diagnosis is correct.

MY, 1945



Tractor Overheats

I would like some information in regard to a 1939 Massey-Harris general purpose four-wheel drive tractor that we have been called on to find its trouble.

This tractor starts right off when it is cold, does not heat and has not been overhauled; but stop it when it is warm and the motor is stuck. The only way that you can turn the motor over is wait for it to cool off or put cold water in it.

We have put a cooling system cleaner in the radiator twice without luck and cannot think of anything else to do as cold water frees it up.

The oil pressure is all right and we even took the head off and the cylinders are all right. Please advise.—L. P. Ingwersen, Wyoming, Iowa.

T is rather difficult to understand the trouble you are experiencing with a Massey-Harris tractor, particularly as there is no increase in engine temperature.

It occurs to me that possibly the trouble is localized to a few of the cylinders, and the heat indicator is in a cylinder that is working all right. In other words, your heat indicator gives you the temperature of one cylinder only and the other cylinders, particularly if they are beyond this, as the water flows, might be a great deal warmer.

I know on a B.A. engine it is possible to have one bank boiling and the other cylinders at normal temperature as shown by the heat indicator.

Despite the fact that you have used an excellent radiator and cooling system cleaner, it is still possible that your trouble is caused by accumulation of rust and scale in the engine water jacket. Some of these scales are extremely hard and are consequently very difficult to remove.

In extreme cases, mechanics have a 20 per cent solution of hydrochloric acid in the engine water jacket to remove the scale. Of course, this cannot be placed in the radiator because the acid would attack the copper. If you should decide to use this solution, disconnect the radiator at top and bottom and seal off the lower hose connection, after which the water jacket can be filled with the solution. This can be left in for four or five hours after which the engine should be drained and repeatedly flushed in order to remove any trace of the acid. It is also necessary to use an inhibitor after thoroughly flushing.

There is a possibility that the difficulty might be in the engine bearings and these should be checked to make sure they have the standard factory clearance.

I think it would also be worth while draining and flushing the oil pan, and changing to a different brand of oil as the oil might not be suited to this particular operation. Possibly some antifreeze has gotten into the oil at some time and might be the cause of the trouble you are experiencing.

I trust these suggestions will be of some assistance.







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ANNOUNCING

AN IMPORTANT NEW SERVICE

FOR STUDEBAKER DEALERS

Color Engineering for Showrooms and shops

"AMERICA'S FRIENDLIEST FACTORY" EXTENDS ANOTHER HELPING HAND

LAST year, Studebaker was highly commended throughout the motoring world for publishing a timely and unusual new book of architectural plans called "Postwar Housing and Facilities for Studebaker Dealers."

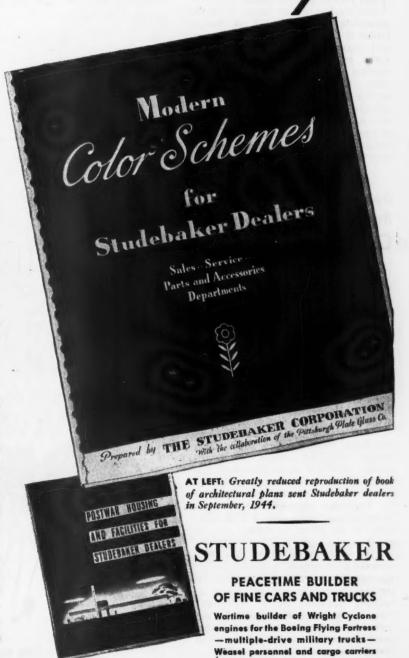
Now, Studebaker goes a step farther—with a unique book of ideas and suggestions for effective color treatments for dealers' show-rooms, parts departments and service areas.

This new volume, just coming off the press, is entitled, "Modern Color Schemes for Studebaker Dealers." It's a practical application to automobile dealers' needs of the scientific principles of color engineering that have been helping production in war equipment factories so much.

For immediate use—no waiting

The color experts of the Paint Division of the Pittsburgh Plate Glass Company worked closely with Studebaker in preparing both the text and the full color illustrations in this manual. Sample paint chips are included for the decorator's guidance. Here are many ideas that will enable dealers, who can't rebuild or remodel immediately, to proceed at once to make their premises more attractive, theerful and efficient.

"Modern Color Schemes for Studebaker Dealers" is just another example of the kind of assistance Studebaker continually seeks to give its dealers. It's typical of co-operation that does much to account for Studebaker's envied reputation as "America's Priendliest Factory."



MAY, 1945

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When writing to advertisers please mention Motor Age

41



Tire Tube Control

THE Rubber Bureau of the War Production Board has taken steps, by amending Appendix III to Rubber Order R-1, to control, during the second quarter of 1945, the number of tubes which may be produced for civilian passenger car and small truck tires. By this action it is estimated by the Rubber Bureau that 1,000,000 pounds of carbon black per month will be made available for the production of heavy-duty truck and bus tires, so badly needed by the military and for essential civilian transportation.

Dealers Must Endorse Ration Coupon Sheets

OPA is preparing to take a tougher attitude about transfer of gasoline ration coupons (OPA Form R-120) that are not endorsed with the name and address of the dealer who transferred them.

Existing regulations require that no "bingo sheets" be accepted from dealers in exchange for gasoline unless the dealer's name and address appear on the face of the sheet, together with the date of transfer. Distributors must endorse these sheets with their own names and addresses when depositing them in their ration bank accounts.

When counterfeit or stolen coupons are found on a coupon sheet, OPA cannot trace the coupons back to the person who put them in circulation unless the sheet has been properly endorsed by everyone who handled it. Improper identification of these "bingo sheets" thus seriously hampers OPA in its effort to stamp out the gasoline black market.

Field enforcement officers are being directed to undertake injunctive action against violators. Banks have been instructed to refuse gummed sheets of coupons acquired by a distributor from a dealer unless properly endorsed by both parties to the transaction; otherwise no credit will be given for the coupons.

OPA to Consult Dealers On Future Margins

A UTOMOBILE dealer members of the Retail Motor Vehicle Industry Advisory Committee were assured by the Office of Price Administration at a recent informal meeting in Washington, D. C., that they will be fully consulted before OPA sets dealer margins that will prevail when new cars are again in production.

Some of the committee mebers said that they are paying rental increases of from 25 to 300 per cent for their service shops and showrooms. This additional expense, they explained, has been a major factor in increased operating cost. The committee also revealed that it expects at least a 50 per cent drop in income from the servicing of old cars as soon as the public knows that new cars are to be produced.

Freight Raise Increase Draws Government Protest

A PROTEST against increases in freight rates proposed by New England motor freight carriers was filed today with the Interstate Commerce Commission by the Office of Economic Stabilization and the Office of Price Administration. Motor carriers over the entire country may be expected to ask similar increases if those proposed for New England are permitted. The higher rates would increase the cost of the war, OPA added, because the Federal Government today is the country's largest shipper of freight.

The New England motor carriers have received wartime increases of more than 10 per cent above rail rates, OPA reported, adding that further increases are unnecessary and contrary to the stabilization program.

(Continued on page 44)



TRUCUT

ARE you all set to meet the growing pressure of repair and service jobs that clamor for attention? Not unless you have one of these small but highly efficient labor saving, time saving TRUCUT Lathes on your bench.

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The TRUCUT is indispensable in any repair or service shop that features precision workmanship and recognizes the profit possibilities in speedy and accurately powered tools.

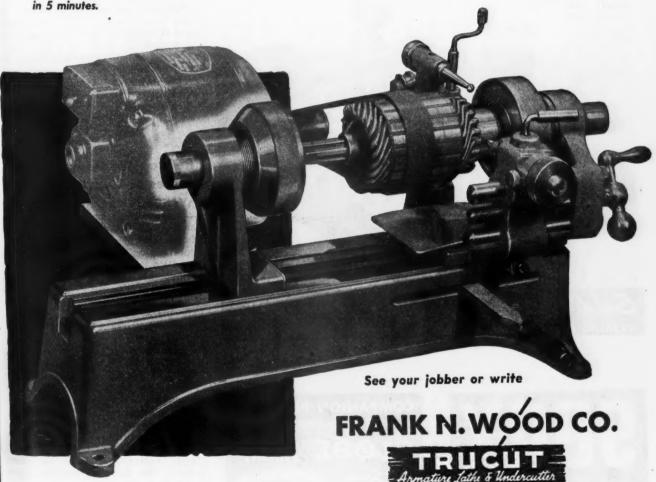
The TRUCUT Armature Lathe and Undercutter machines and undercuts commutators, makes them like New, in 5 minutes. MORE JOBS

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SOAX

AUTOMOTIVE and AVIATION
CHEMICALS

E. A. GERLACH CO.

PHILA. 40, PA., U. S. A.





(Continued from page 42)

Use of Cellophane For Shields Permitted

USE of cellophane for automobile for and frost shields is now permitted, the War Production Board announced. This is in accordance with an amendment to Order L-20 (Cellophane), effective April 16, 1945. Cellophane shields for automobiles to prevent for and frost formations on windshields are a justifiable functional use of the material.

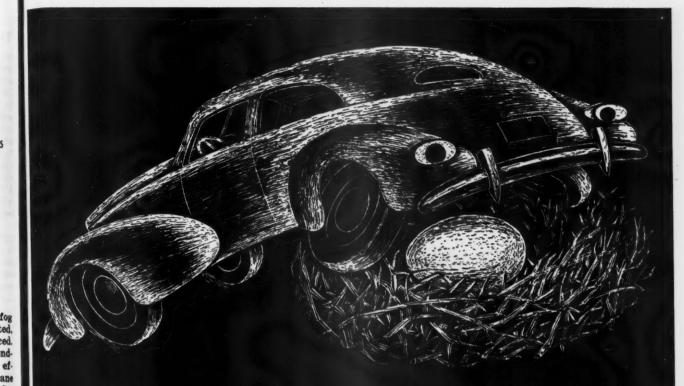
Also included in the amendment is a clarification of the existing restrictions on the use of cellophane for advertising purposes. This clarification is intended to close any loopholes in the order, WPB added.

Reduce Wholesale Ceiling Prices on Synthetic Tires

WHOLESALE ceiling prices for all synthetic rubber tires sold for civilian use, except farm tractor and farm implement tires, has been reduced as of April 15, 1945, according to OPA announcement. No retail ceiling prices of tires will be changed, but OPA said that it expects to be able to announce decreases in retail ceiling prices of synthetic rubber pasenger car tires within the next few weeks.

Manufacturers, brand owners and wholesale distributors of tires are affected. On May 1, 1944, OPA granted these sellers temporary price increases amounting to 8.9 per cent of the maximum retail price on synthetic rubber passenger car tires, and 6.5 per cent of the aximum retail price on all other synthetic rubber tires except farm tractor and farm implement tires. This second group represents truck tires chiefly.

Further revisions may be made later in the wholesale ceiling prices. The manufacture of synthetic rubber tires has not yet reached a point where the costs involved can be predicted with accuracy, and technological studies are still continuing in the industry.



HOW TO KEEP THE JOB FROM

Laying an Egg!

USE McQUAY-NORRIS PARTS

The reasons most good repairmen use McQuay-Norris parts are simple: You can always install them with profit—and with confidence, fully assured that they will never Lay an Egg in performance.

PISTON RINGS

BEARINGS

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BOLTS

SUSPENSION PARTS



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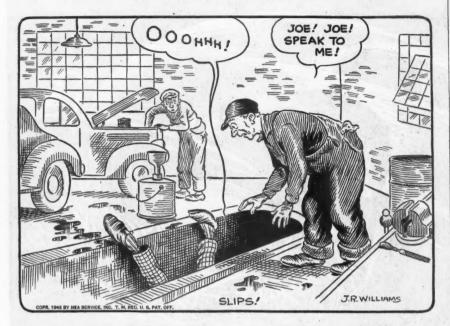
AGE

Your McQUAY-NORRIS Jobber

ALWAYS NEAR - ALWAYS READY



OUT OUR WAY



Above is a portrait of a mechanic, deciding to take up some other business, when, as, and if he gets out of the hospital.

With Sol-Speed-Dri, you can end the dirty, dangerous accumulations of oil and grease on the floors around your shop, garage, gas station, truck or bus terminals.

SOL-SPEEDI-DRI is easy to use and inexpensive. It cuts down accidents, falls, and the dangers of fast-spreading fire...makes employees slip-happy.

Sol-Speedi-Dri, white, dry and granular, is oil-thirsty, absorbs oil like a blotter does ink. Spread a carpet of it, wherever oil and grease accumulate and you immediately have a white, non-skid surface. Sweep it up, and the floor will be clean, dry, and safe. No more mess, no more slipping, no more back-breaking floor-cleaning jobs.

Pin your business card to this ad and mail it in for a Free Sample and complete details.

SUPPLIERS: East — Refiners Lubricating Co., New York 1, New York.

Midwest & South — Waverly Petroleum Products Co., Philadelphia 6, Pa.

West Coast — Waverly Petroleum Products Co., Russ Bldg., San Francisco 4, Calif.



Dealers Will Be Consulted by OPA

A UTOMOBILE dealer members of the Retail Motor Vehicle Industry Advisory Committee were assured by the Office of Price Administration at a recent informal meeting in Washington, D. C., that they will be fully consulted before OPA sets dealer margins that will prevail when new cars are again in production, OPA announced.

The meeting was called by the com-

mittee to learn to what extent automobile dealers may be called upon to absorb price increases, if increases are granted automobile manufacturers when civilian production starts.

James F. Brownlee, OPA Deputy Administrator for Price, addressed the meeting and, after explaining the pricing policy of the agency, informed the members that OPA is in no position now to make commitments until it knows what prices will prevail on new automobiles and until it has made a survey of the dealers to determine what action, if any, might be required to maintain generally fair and equitable prices.

Brownlee said that there was no indication that passenger car prices would be increased, but if they are, full consideration will be given by OPA to information that was brought out at the meeting by the dealers.

Some of the committee members said that they are paying rental increases of from 25 to 300 per cent for their service shops and showrooms. This additional expense, they explained, has been a major factor in increased operating cost. The committee also revealed that it expects at least a 50 per cent drop in income from the servicing of old cars as soon as the public knows that new cars are to be produced.

WPB Announces Change In Battery Production

THE War Production Board has announced that production of replacement storage batteries will no longer be authorized under the spot authorization procedure, because of the critical supply position of lead which is necessary for their manufacture.

Since the lead supply is extremely short, it is necessary that all available supplies for storage battery production be channeled to types of batteries needed for military and basic essential civilian purposes. As a consequence, it is no longer possible to permit manufacture of batteries under spot authorizations since WPB would have no control over the particular types being made.



No. 89-J 1/2" Utility Drill with Jacobs Chuck

For a light weight, handy, high powered general utility ½" drill, the SpeedWay 89-] is your best bet. Ideal for close quarter drilling in tight places, maintenance, installation and repair work. Has streamlined air cooled discast case, specially wound high torque Speed-Way drill motor, self aligning oilless bearing, and every modern feature. Sturdily constructed. Will give years of service.

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THERE ARE MORE PROFIT OPPORTUNITIES THAN EVER WITH CHAMPIONS

LING ALL CARS

Right now Champion Spark Plugs offer more profit opportunities than ever before. Almost every car without exception is in need of spark plug service—cleaning, testing, or replacement.

The car owner knows this. He's spark plug conscious. He's economy minded. He realizes that clean spark plugs, in good condition, are absolutely necessary to good performance with today's lower grade fuels. He's ready for your services.

Order the poster shown at left now. Have your jobber salesmen check your stock of Champions. Arrange a spark plug display. See that your cleaner and tester, and spark plug tools are in good shape. Raise the subject of the spark plugs with every customer and suggest testing and cleaning. You'll be amply rewarded by the profits you will make in the next few months. Champion Spark Plug Company, Toledo 1, Ohio.



Buy Bonds "Bigger Bonds for the Mighty Seventh"

This attractive window poster available through Champion field representatives and Champion jobbers. Order your supply now. Lithographed in full color. Size 14" x 27", gummed top and bottom.

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AND SELL DEPENDABLE

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Easy Riding

(Continued from page 23)

is in a different category. As a chassis unit, it should be checked each time the car undergoes a routine lubrication. This check-up requires skill and cannot be made without a road test. Shackle bolts and pivotpin wear are not easily gaged as the pins support the weight of the body, power plant and frame. But above all, the repair man remembers the horror of that last job where the shackle bolts were so rusted (due to lack of proper lubrication by the owner) that he worked hours on their removal. Finally, when the best words, skill and penetrating oils had failed, he employed the old reliable acetylene torch. Let someone else find and repair that kind of trouble!

On the flat steel leaf type spring, wear can be detected by using a bar at both shackle and pivot ends. Pins should be checked for proper lubrication. If rubber bushings are used, make sure the pins are in center position. If they are, the bushings may be considered passable. The leaves of the springs should be checked for side slap. Vertical clamps should be utilized when this condition is encountered. Side slap can cause a lot of noise on a rough street. Last, but not least, check the "U" bolts which hold the springs to the axles. Tighten these bolts to about 90 lbs. with a tension wrench. This should be done about every 2,000 miles.

To check the spring for fatigue or sag, a measurement should be taken between the center of the spring and the frame. There is no set specification for this distance on cars fitted with leaf springs, but after observation of various cars and comparing the springs on both sides of the car the mechanic can detect fatigue at a glance. Overloading and defective shock absorbers are the usual cause of fatigued springs. Spring breakage is usually caused by loose "U" bolts, excessive rebound or inoperative shock absorbers.

On coil springs, service is usually minor. Fatigue, as in the case of the leaf spring, also can be determined by measurement. The chassis height should be compared with factory specifications. In serious cases the coils bottom. When this occurs a full shock is transmitted to the body and the passengers. Most of the difficulty and noise with this type of spring suspension will be found in the radius rods, spring seats and support arms.

The shock absorber has played a tremendous part in providing a comfortable ride over various types of road conditions. This is why inspection of the shock absorbers should be as regular as a motor tune-up or a tightening operation. To make this inspection, disconnection is usually required. However, leaks will be de-

tected easily, as the outside of the unit soon becomes covered with fluid which combines with road grit to form a gummy mass. To inspect the shock, disconnect the lower attaching bolt on the telescope type or one end of the connecting rod on the other types, and operate the unit by hand. It it offers no resistance to movement, the unit requires refilling or rebuilding. If there is no free travel, the shock is satisfactory.

When refilling shock absorbers, they should be operated by hand while the fluid is slowly introduced. When no more fluid can be added, and air bubbles have ceased to rise to the surface of the fluid in the absorber, the filler plug should be replaced. Shock absorbers that show evidence of leakage should be replaced or rebuilt.

The potential service on shock absorbers and springs constitutes a practically unexplored field, almost unlimited in scope. Just as proper air pressure will help to prolong tire life, adequate spring and shock absorber service will add life to our aging motor cars. Correctly serviced shock absorbers, in particular, will decrease tire wear, reduce driver fatigue and provide greater passenger comfort.

The Grieger Co. has used mailing cards and personal contact to bring their spring suspension service to the attention of the motoring public. Beginning in 1942, when they handled one shock absorber job per month.

their program has built business to the present rate of four to five per day. All jobs are done on the jubrication where inspections can be made and the customer can be shown the condition of his springs and shocks. Permission to proceed with a repair job is obtained readily when the owner can see the necessity for correction.

"We feel that we are doing a distinct service for the benefit of the customer as well as building good will," said Engelbrecht. "This good will should help to maintain profits long after the war ends and normal competition returns. The pleasant contact created by helping the owner realize the comfort of an easy riding car also affords the opportunity to sell other services and products."

Acquire Additional Space

The Sterling Tool Products Company, Chicago, Ill., has acquired an additional 19,000 square feet of floor space at the location of the present Sterling factory, 363 East Ohio Street, it has been announced by Stephen A. Crosby, president of the company. Reason for the increased factory facilities, according to Mr. Crosby, is to permit the company to undertake an enlarged production schedule on present products and to acquire added factory and laboratory equipment for the development and marketing of new products.

Gabriel Company Holds Regional Meeting



Production, sales, advertising and merchandising plans of the Gabriel Co., Cleveland, were discussed and sales quota set at a recent series of regional coast-to-coast meetings of Gabriel distributors. At the Chicago meeting L. W. Klein, executive vice president, was tendered a birthday testimonial dinner and a chronometer gold watch, together with a dedicatory album containing the signatures of the Gabriel distributors. The illustration shows, L. to r.: Gabriel's president, John H. Briggs: Joseph Cunningham, manager, Borg-Warner International Corp. and Bill Klein.

FULL STRENGTH HORSEPOWER FOR ALL CARS

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Guarantees better and smoother performance or double-your-money-back



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AGE

Guarantee

Add Casite to crankcase and run
through air intake according to instructions, then drive your car 100
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if not convinced that Casite gives
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you better and smoother performance,
you get double-your-money-back by
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CLEANS OUT MOTORS . KEEPS MOTORS CLEAN

● MILLIONS of car owners have learned how effectively Casite restores lost horsepower to sluggish motors. Millions more are learning about Casite through hard-hitting magazine and radio advertising. Sell Casite, and sell it NOW, for better and smoother performance, in the hot summer ahead!

A pint in the crankcase every oil change and a pint through the air intake every three months.

Slipping Clutch

(Continued from page 25)

a foot on the running board and leaned on his knee. "It's completely automatic," he said. "After you start the engine and push in the 'lock out' switch on the dashboard, you never pay any more attention to the clutch pedal. You just slip the gear-shift lever into first or reverse, and then step on the accelerator. The clutch engages automatically. And it'll do the same thing when you shift from second to high. All you do is ease off on the accelerator, shift the gears, and tramp on the accelerator." He straightened up, walked a couple of steps toward the front, and lifted the hood.

"That's where the work's done." he said, pointing to the power cylinder on the left side of the crankcase. "It's a vacuum cylinder that pushes the clutch in and out of engagement. This linkage alongside of the crankcase connects with the clutch pedal. When you let vacuum from the intake manifold into the front end of the cylinder, it pulls the piston forward and disengages the clutch. Then, when you let in air, it reduces the vacuum and the piston moves towards the rear and the clutch engages.

Tommy pulled at the lobe of an ear. "That's the simplest automatic gadget I ever saw on a car."

"It ain't quite that easy. You gotta control the action of the cylinder. That's done by the control valve here alongside of the block. You can see by this linkage that it's connected with the accelerator pedal.

"But that's still awful simple."

"Yes, it is," admitted Pop. "but you can't have the clutch engagin' every time you step on the gas and disengagin' every time you let up on the accelerator. And you can't have it engagin' as fast in low as it does when you shift to high. So there's three solenoids and six automatic switches to operate the clutch and smooth out its operation.

"The control valve itself has two main parts. One is the 'spool.' It's connected with the accelerator pedal and bleeds air into the cylinder as the pedal is depressed. The other is the sleeve.' This cuts off the vacuum to the power cylinder. It's operated by a spring-loaded diaphragm. There's always the same amount of vacuum workin' on the diaphragm as there is on the piston in the power cylinder. In that way, the action of the piston is synchronized with the engine speed, so you get a slow engagement at low speeds and a fast one at high speeds. Now about the switches and solenoids.

"First is the lock-out switch. When it's pushed in, it makes the Electromatic control operative. Then there's the low and reverse switch. That's operated by the low and reverse shifter rail in the transmission.

"Then there's the governor switch behind the transmission," Pop went on. "One of its jobs is to keep the clutch from disengagin' every time you let up on the accelerator. As soon as the speed goes over 17 m.p.h., one set of points, marked EC, open and lock out the Electromatic mechanism. The other set of points is marked AD. These are to operate the second-speed solenoid valve under certain conditions.

"Now, we'd run into trouble if the governor locked out the Electromatic control and there wasn't no way to make it work at higher speed. We just couldn't shift gears," he pointed out. "So there's a direct-speed switch on the rear of the crankcase. The instant the gear-shift lever is moved out of high gear, the points close and the clutch disengages.

"There's just two more switches—the accelerator switch and the second-speed switch. The accelerator switch is mounted on the front of the dash. Its only purpose is to lock out the Electromatic when the speed in high gear falls below 17 m.p.h. so there can't be no slippage or excessive wear on the clutch plate. The second-speed switch is located on the second and high gear transmission shift rail. The points close only when the second-speed gears is engaged."

Tommy was rubbing his ear again.

"That's a lot to try and remember," he said.

"It's better to have a diagram," admitted Pop. "I'll let you have the factory manual sometime so you can study it. It ain't hard, once you understand the purpose of the switches. Now all these switches operate solenoids through relays. They're easy enough to savvy except maybe the second-speed solenoids valve. That's got two controls-the second-speed switch and the AD points in the governor. And the only reason it's connected with the AD points is so it won't operate till the car is movin' faster than the governed speed in second. It's to keep the car from lurchin' when you step on the accelerator while you're in second gear. It's actually a choke in the air-bleed line that controls the amount of air bled to the power cylinder to slow up the clutch engagement."

Pop straightened up and smiled, "Guess that ought to give you a rough idea."

"But what makes the clutch on this car slip?" pressed Tommy.

"I go so interested I forgot all about our home-front hero." He stuck his head under the hood. "You make most of the adjustments in the control valve here," he pointed out. "At least you do for a slippin' clutch. The trouble is, the engine speed is too (Continued on page 70)



"He was in 5 different times to see if it was finished— Now he sends me a bill for 5 visits!"

What do these Signs mean?



The Sign of Challenge. "Throwing down the gauntlet" constituted a challenge to battle when knighthood was in flower. The expression is still in current use though the gauntlet now is figurative.

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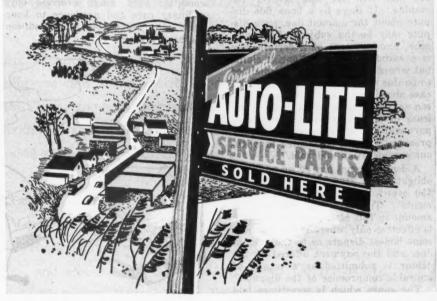
The Sign of a Winner. Today a broom lashed to the conning tower of a submarine signifies a "kill,"—a vessel sunk. Years ago, sailing vessels similarly attached a broom to the masthead to signal victory.



The Sign of Bad Luck. That it is bad luck for a black cat to cross one's path goes back to the days of witchcraft. Black cats were supposed to be in league with witches and the forces of evil.



The Sign of Championship. The laurel wreath was used by the Greeks to crown the champions in the ancient Olympic games. It has also been used at times to crown the winners as a part of the ceremony in the modern revival of these games.



The Sign of Sound, Profitable Business. Auto-Lite electrical parts are original factory equipment on more than 8,500,000 cars, trucks and tractors. The owners are in many cases neighbors of yours. Give them the kind of service that makes friends—honest

workmanship and original factory parts for replacement. You'll be building a sound and profitable business for years to come.

THE ELECTRIC AUTO-LITE COMPANY
Parts and Service Division
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THE IN "EVERYTHING FOR THE BOYS" STARRING DICK HAYMES-EVERY TUESDAY NIGHT-NBC NETWORK

MAY, 1945

AGE

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Legally Speaking

A lawyer's interpretation of federal and local court decisions of interest to repairmen, presented each month

Those 'Paid in Full' Checks

Few transactions are quite so enraging to a repairman as the tender of a check by a debtor marked "in full payment" or "paid in full" where the amount of the check is less than the true amount due. The purpose of such checks, of course, is to put the repairman in a position of either refusing the check or cashing it with the risk of being unable to collect the balance due him.

This subject is illuminatingly discussed in a recent decision of the Supreme Court of Oregon. Says the court:

"Where the facts show clearly a certain sum to be due from one person to another, a release of the entire sum upon payment of a part is without consideration, and the creditor may still sue and recover the residue. If there be a bona fide dispute about the amount due, such dispute may be the subject of compromise, and payment of a certain sum is a satisfaction of the entire claim. but where the larger sum is admitted to be due or the circumstances of the case show that there is no good reason to doubt that it was due, a release of the whole upon payment of part will not be considered as a compromise, but will be treated as without consideration and void."

A debtor cannot pay off an admitted obligation of \$100 with a check for \$50 which he marks "in full payment." The offer of the smaller amount in full settlement of the debt is effective only where there has been some honest dispute as to the amount due, and the payment offered by the debtor is submitted as a means of amicable compromise of the dispute.

The snare which is sometimes laid for a repairman is a trumped-up dispute or complaint about goods or service. After starting such a controversy, the debtor may then offer a so-called compromise payment in full settlement, and, if the repairman accepts it, the debtor may ultimately be able to satisfy the court that his complaint was the basis of a bona fide dispute and that the acceptance of his settlement offer represented a legally effective compromise of the entire transaction.

A repairman should beware these "full payment" checks unless the amount of the check is actually full

payment or unless he can unquestionably prove that the debtor owes a larger amount, and no dispute about it! (Shelley vs. Portland, 76 Pacific Reporter, second series, 477).

Repairman Not an Insurer

That a repairman is responsible for the safety of his customers while in or on his business premises, is a principle of legal liability that has been determined by numerous court decisions. But there is a definite limit to his responsibility for injuries sustained by his customers, as a Louisiana court points out in a recent case.

"Even a merchant is not the insurer of the safety of his customers," said the court. "He need not keep his floors and passageways in perfect condition, but must exercise only ordinary care and prudence to keep them in a reasonable safe condition for his customers."

The Louisiana case arose out of a suit brought by a customer against a merchant who had a stand in front of his place. It was alleged that one small item had rolled from the stand onto the sidewalk and that the woman bringing the suit had been injured by slipping on this article. The lady fell and struck her arm against one of the boxes on the stand

The court thought this was an attempt to carry the merchant's liability further than the legal limits and said:

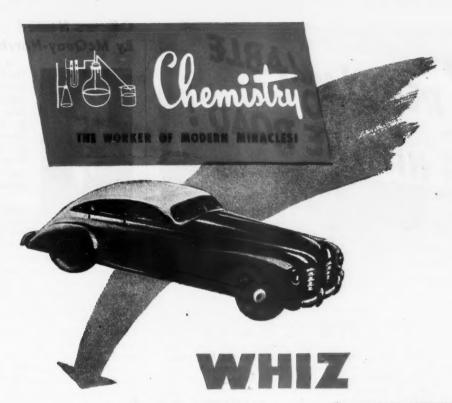
"Surely it cannot be said that, to permit a single tiny item to remain unnoticed upon an open sidewalk, is a violation of that duty which requires only ordinary care to keep the passageway reasonably safe, even if it can be said that the sidewalks should be construed as a passageway in his store. The merchant's duty to his customers with respect to keeping passageways reasonably safe was complied with.

"Nor is he liable because the plaintiff struck her arm upon a box. The boxes had nothing to do with the fall. The cause of the accident was the plaintiff's slipping and not the location of the box."

While the repairman is thus liable for reasonable care for the safety of his customers, it is clear from the court's decision that he does not "insure" them against all accidents (Bartell vs. Serio, 180 Southern Reporter, 460).

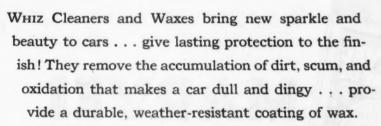


"You realize this job will cost you extra, to cover my time for driving way out here!"



CLEANERS and WAXES

Protect the Body Beautiful!



Get set for the big demand for such popular, quick-selling Whiz items as London Coach Cleaner (liquid)... London Coach Wax... Venus Polish. Replenish your stock now! Feature Whiz Cleaners and Polishes! R. M. Hollingshead Corporation, Camden, New Jersey; Toronto, Canada.



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Officers Named By McQuay-Norris



Arthur G. Drefs was elected president of the McQuay - Norris Mfg. Co., and W. K. Norris was named chairman of the board of directors, according to a recent announcement.

Drefs became associated with McQuay - Norris

25 years ago, and since that time has been an officer and director. He is a director of the Automotive and Aviation Manufacturers Assn., serves on the Automotive Parts Advisory Committee for OPA and WPB, and is a former director of the NSPA. He is chairman of the board of the St. Louis Chamber of Commerce and a member of the board of the National Association of Manufacturers.

Norris, who organized McQuay-Norris in 1909, has been president of the company since that time. One of the pioneers of the automotive industry, he introduced the first replacement piston ring and is responsible for many of the methods of selling and distributing automotive parts now in general practice.

Steady Flow of Parts **Despite War Conditions**

America's civilian trucks and automobiles are still rolling the highways of the nation largely because the service parts industry has managed to keep a steady flow of parts streaming from hundreds of factories despite handicaps brought about by war-time conditions and control.

Elaborating on the statement, Royce G. Martin, president of the Electric Auto-Lite Company said. "This clearly shows that the automotive parts industry has accepted its war-time responsibilities of keeping America's private transportation system in 8 healthy condition.

"In 1940 the entire industry reached an estimated output valued at \$533,-004,020, while in 1943 the value of production was set at \$527,710,048. Remember, this is civilian production only. Yet, the industry managed to not only increase the figure for 1944, in order to service civilian motorists, it also increased its war output over any preceding year.

"We are doing our utmost to keep moving functional service parts through regular distributor channels in order to prevent any serious breakdown of all essential private transportation, and at the same time are attempting to speed up the production



OR AGE

MAY, 1945

oduction

WILLARD STORAGE BATTERY CO. . CLEVELAND . LOS ANGELES . DALLAS . TORONTO







Valves

(Continued from page 52)

valves must operate are so severe, it is essential that special care be exercised in servicing them in order to provide the best operating conditions possible and thus obtain maximum power and valve life.

When reconditioning valves, the first step is to clean them thoroughly and the simplest way of doing this is by means of a power driven wire brush. The stems should then be polished with fine abrasive cloth. After cleaning, the valves should be examined to see if there are any burned areas on the seat face of the valve. If there are, the valve should be discarded because the burned portion, and the area immediately surrounding it, will have lost its heat resisting quality, and will quickly turn again at that spot when the engine is operated at full power.

The stem should also be examined to make sure it is not worn and the simplest method is to use micrometers. If the valve is not worn or burned it should be refaced, care being exercised not to remove so much metal as to make a sharp edge at the point of maximum diameter. Valves which are refaced too much burn easily and also cause preignition.

The next step is to check the valve guide for wear. Guides worn beyond .001 to .0015 in. make it difficult to reface the valve seats accurately, and also cause inaccurate valve seating and consequent loss in power. Guides can be checked by installing the valves and noting the amount of side play.

If the guides are in good condition and clean, the next step is to reface the valve seats. When reseating, first use a coarse abrasive to remove the glazed surface, then finish with a fine stone. By means of 15 deg. and 75 deg. stones, finish the seat to the proper width. In passenger car engines, they should be about 1/16 to 3/32 in. Seats that are too narrow will tend to increase valve head diameter as they offer too great a resistance to the conduction of heat from the head to the water jacket by way of the valve stem and guide.

After refacing the valve and seat they may be lightly lapped in order to insure a tight valve. Some valve manufacturers and companies producing valve refacing equipment say this is not necessary; however, the procedure is recommended by the Air Force and race car mechanics also.

It is also important to carefully check valve springs to make sure that they do not differ from factory specifications. Weak valve springs result in valve flutter, particularly at higher engine speeds and loss in power.

No valve job is complete without a thorough cleaning and flushing of the cooling system in order to eliminate any scale or other accumulations

(Continued on page 78)

SON, BEFORE YOU SINK
TOO MUCH MONEY
IN WRENCHES...LET
ME GIVE YOU A TIP!

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TO THE THOUSANDS OF YOUNGER MECHANICS WHO WANT A SHORT-CUT TO FULL WRENCH EQUIPMENT

HERE'S how you can get your postwar Socket Wrench equipment for ALL general work and SAVE about 40% on original cost . . . CUT your wrench replacement expense practically in half . . . get THREE TIMES more wear than from ordinary high-grade wrenches . . . and do EVEN BETTER work with more earning power!

Sounds good, doesn't it? Thousands of mechanics took that short-cut before the war when NUGGET Socket Wrenches were introduced. NUGGETS can't be made during the war, but they'll be back when limitations are lifted on the necessary super-steel.

The miracle in NUGGETS is REAL because they offer the FULL RANGE of sockets, handles and attachments in ONE DRIVE for all work which otherwise requires wrenches in TWO DRIVES. All need for 1/8" and 1/2" drive wrenches is abolished!

Ask the old-timer who bought NUGGETS before the war. He'll tell you not to buy war-time wrenches unless you absolutely need them... and to tuck a couple of bonds in the sock to BUY NUGGETS when they're made again!

TO PRESENT NUGGET OWNERS. If you have lost any of your NUGGET wrenches, see your Blacehawk Jobber He will arrange delivery of the replacements. Blackhawk wishes to protect the investment of present owners, even though Nuggets cannot be made and sold on a mass scale to new buyers until after the war.

A Product of BLACKHAWK MANUFACTURING CO.,
Dept. W665, Milwaukee 1, Wisconsin





WRENCHES WRENCHES WRENCHES

Don't Bury Two Sets When

One Will Do the Job!



Well over a quarter of a century ago, the United States Air Compressor Company blazed the trail in the manufacture of automotive service station equipment. At that time, a quality standard was set and over all these years, never once, have we deviated from that policy.

Many U.S. air compressors of the 1900 vintage are still in active daily use; which in itself is evidence of not only quality materials but good, sound engineering, even back in the early days.

U. S. postwar service station equipment, air compressors, lifts, lubrication equipment, will be as modern as tomorrow, that you can be sure of, and quality made from stem to stern, that you have al-

ways been sure of.





Hudson To Double Number of Distributors

Instead of reducing or eliminating distributors in its sales setup, Hudson Motor Car Co. has expanded its number of distributorships to double what it was before the war, according to George H. Pratt, general sales man-The postwar sales organizaager. tion will consist of six divisions with jurisdiction over 16 regions. Sales divsion personnel will include a manager, business management, advertising, and personnel heads, and distributor and zone organization men.

Hudson thus becomes the second independent to strike out upstream against the current trend toward direct dealerships. Graham-Paige Motors Corp. recently announced that it would use the distributorship system in organizing its postwar sales organization. Both companies state they believe the system is inherently satisfactory, and Pratt further adds that it will be retained until it no longer does the job.

Cooperation Helps Brake Check Program

The brake check program sponsored by the International Association of Chiefs of Police is being actively supported by the automotive industry, according to Robert E. Raleigh, acting director of the association's safety division. Radio time, newspaper and magazine advertising, poster and literature distribution facilities have been made available for the drive.

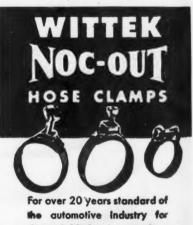
The program, which will close June 1. is being called to the attention of radio audiences of some 30 established radio programs, including many of the most popular features. Posters and leaflets are being distributed by local police and cooperating agencies. Poster displays number about 2 million, with leaflet distribution approaching 30 million.

Police officials, cognizant of the fact that the program will impose a strain on the already overtaxed facilities of repair shops, point out that a vehicle equipped with inadequate brakes is a constant menace to the safety of passengers, pedestrians and the occu-pants of other cars.

Truck Production Resumed by Dodge

The Dodge Truck plant has resumed production of half-ton pickup trucks for civilian use under authorization from WPB. Known as the Model WC, the truck is of prewar design and has aluminum pistons.

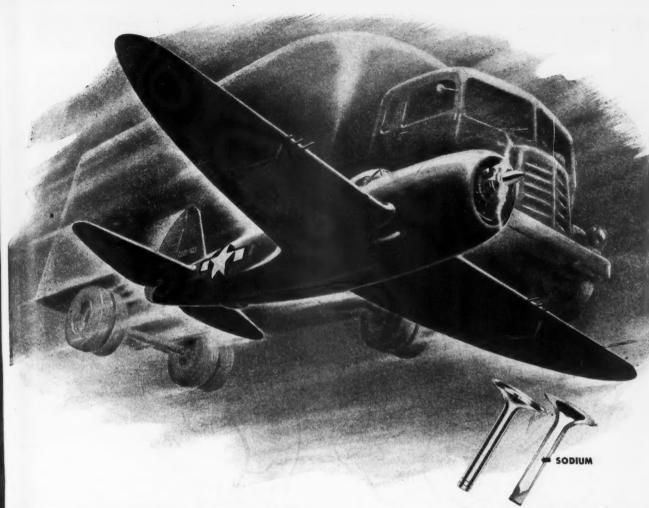
Since it is being produced only for war and essential civilian work, sales will be on a priority basis.



dependable hose connections.



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We picked this out of the air

AT the end of the First World War, with top flying speed around 100 miles per hour, the life of an aircraft valve was 50 flying hours.

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sales

Now, Thompson aircraft valves often operate 5,000 flying hours -1,000,000 air miles — before replacement is necessary.

Behind this valve evolution is a story of unremitting search by our engineers, metallurgists, and factory men for new steels, new coolant mediums, and improvements in valve design and production methods.

Today, every type of American war plane and many other military engines are equipped with Thompson Sodium-Cooled valves.

Soon after the war, Thompson will offer an adaptation of this aircraft Sodium-Cooled valve for heavy-duty automotive service.

It is just one of many things to come from Thompson which will speed postwar automotive progress. The New Sodium-Cooled Valve For Trucks and Buses—A preview of the postwar Thompson Sodium-Cooled Valve for heavy-duty service in trucks, buses, tractors, marine and industrial engines. The cut-away section shows the bollow stem which is 60% filled with sodium.



Thompson Sodium-filled Valve for Aircraft Englines — Cross-sectional view at the right shows how Thompson aircraft exhaust valves are filled about 60% with metallic sodium. The sodium liquefies under engine heat, splashes the inside surfaces and rapidly carries heat away from the red-hot valve head. Forged from finest steel and super-finished or nitrided, this valve is built with watch-like precision.

Keep Close Thompson Products Jobben

R AGE

don't say Muffler ...



This is the famous Walker patented Louvered Tube. It swirts the gases all in one direction, like rifling in a gun barrel.

say WALKER SILENCE

Say Walker Silencer...Sell Walker Silencers—and you identify yourself with the leader in replacement mufflers.

• It's a fact . . . "I.T." does make a difference—the difference between just "mufflers"—and Walker Silencers, the largest selling replacement muffler in the world.

"Individually Tuned" Walker Silencers have the finest sound and back-pressure engineering in the world, based on the famous patented Louvered Tube.

Walker Silencers give safety, improved engine performance and greater economy.

Walker Silencers are made to fit-by scientific engineering, not by brute force.

Walker Silencers are advertised to your customers in The Saturday Evening Post as muffler life insurance . . . and every advertisement says "Silencer" instead of just "muffler."

Every car owner is a Walker "Silencer" prospect. Deal yourself in on the profits. Don't be just a "muffler" dealer—be a Walker Silencer dealer. "I.T." does make a difference.

III. . . For Fast, Easy, Profitable Installation.

Walker "Individually Tuned" Silencers fit in every detail. Shell lengths and diameters, size and shape of headers, brackets, flanges, etc., all meet installation specifications exactly!
"I.T." makes the difference.

CORROSION BALANCE. . . For Longer Life.

The materials and gauges of materials used in the construction of Walker "Individually Tuned" Silencers meet definite endurance standards-inside and out-assuring "corrosion balance" for long, efficient service.

ACOUSTICAL BALANCE, ... For Quietness and Comfort.

Maximum silence can only be achieved through the proper acoustical balance of all phases of the exhaust sound. Walker controls 1st and 2nd harmonics, high pitch and "come-down" within rigid tolerances of noise fatigue.

PERFORMANCE BALANCE... For Peak Engine Efficiency.

Walker engineers so accurately "Individually Tune" Silencers that back-pressure never exceeds standards set by exhaustive road and laboratory tests to assure top engine performance and gas economy.

SATURDAY EVENING POST... For Greater Customer Preference. Walker Silencers are well known to the millions of carowning readers of The Saturday Evening Post. It pays to be identified with Walker





WALKER MANUFACTURING COMPANY OF WISCONSIN - RACINE, WISCONSIN

Also Makers of Walker Jacks and Electric Lifts

R AGE

"FUFRY OLD CAR" NEEDS THIS SERVICE

and every car is an old car today

To keep old cars in good running condition, cooling systems must be regularly serviced. Otherwise accumulations of rust, scale and oilmuck reduce cooling efficiency, often to the danger point. When this happens, scored cylinders, burnedout valves and bearings and other damage results.

Today, with the supply of new cars cut off, every car is old—cooling system service is imperative. With but a very little routine effort you

To keep old cars in good running can make an attractive, year-'round profit from cooling system service.

Make a drive on cooling system cumulations of rust, scale and oil
compounds now.

WARNER RADIATOR CLEANER quickly removes rust, scale and oil-muck—opens passages and frees the engine from dangerous hot-spots. Over-heating usually disappears with the first cleaning.

WARNER COOLING SYSTEM PROTECTOR k e e p s the cooling system clean—prevents rust—protects metals against harmful chemicals found in most water.





Timken Bearings are
the first choice of engineers and fleet operators
everywhere because of
their unusual efficiency
and outstanding performance. Be sure the trade-mark
"TIMKEN" is on every bearing
you buy!

THE TIMKEN ROLLER BEARING COMPANY CANTON 6, OHIO

Ceiling Wage Rates Set For Detroit Engineers

Ceiling wage rates for engineering employees in the Detroit area have been set by the Detroit regional WLB and will apply to automobile companies, all engineering job shops, and all manufacturing companies employing designing engineers. Approximately 7000 engineering employees are affected.

Louis C. Mariani, board chairman, stated that the ruling would gradually "eliminate the inflated rates which unstabilized the entire industry, made possible labor brokerage, and created a national scandal."

The top rate allowed for any hourly rated, non-supervisory classification of product engineering will be \$2.65 per hour, and \$2.45 per hour for tool and machine engineering classifications. In addition, no employer, even though he has a higher legal maximum rate, may hire or increase any engineering employee above the newly established ceiling ratés. Employees legally receiving more than the new ceiling at the time of the ruling, however, may not be cut. Any employer who now is paying less than the ceiling may not increase rates without obtaining WLB approval.

Elected President

H. C. Thomas, Little Rock, Ark., was elected president of the Arkansas Automobile Dealers Association at a meeting held in April at Little Rock. He succeeds G. M. McDavid of El Dorado. W. H. Sadler, Little Rock, spoke on the outlook of the automobile industry in Arkansas. Also elected were R. J. Ross, Ft. Smith, vice president; Fred S. Balch, Little Rock, reelected treasurer, and Link Lewis, Little Rock, re-elected secretary-manager.

Nine new board members were elected. They include: Robt. O. Cook and W. E. Bale, Little Rock; R. C. Davis, North Little Rock; J. T. Clower, McGehee; Edgar Pryor, Camden; R. G. Clinton, Hot Springs; C. B. Wood, Osceola; Thos. F. McLarty, Hope; Truman Baker, Searcy.

Named Sales Manager

Appointment of E. Peerce Lake as general sales manager of Graham-Paige Motors Corporation was announced by Raymond J. Hodgson, president. Lake has been vice-president and general manager of the Warren City Manufacturing Company, Graham-Paige subsidiary at Warren, Ohio, since last November.

Glen L. Logan, who joined Graham-Paige in September, 1943, will be the assistant sales manager, Hodgson said. Logan formerly was assistant to the general sales manager of the Packard Motor Car Company.



Look 'em over—those United Motors lines at the right. Every one of them is a standout. Every one of them has that "extra something"... in the quality and performance of the parts and products themselves, in the merchandising support that United Motors Service puts behind them, in the market demand that is always there for original-equipment products used in America's leading cars. Tie up with United Motors lines. See your United Motors distributor, or write us direct.

Returning veterans: The automotive service industry offers great opporlunities for establishing a profitable business. United Motors Service can help you—write today for information about a United Motors Service Station Franchise.

BUY WAR BONDS

UNITED MOTORS SERVICE

DIVISION OF GENERAL MOTORS CORPORATION
GENERAL MOTORS BUILDING, DETROIT 2, MICHIGAN

That Goes For
Every One of These
UNITED MOTORS
LINES

DELCO Batteries INLITE Brake Lining DELCO Radio Parts HYATT Roller Bearings DELCO Auto Radios HARRISON Heaters DELCO-REMY Starting. Lighting and Ignition **NEW DEPARTURE Ball Bearings DELCO Shock Absorbers HARRISON Thermostats GUIDE Lamps** AC Fuel Pumps, Gauges and Speedometers KLAXON Horns **DELCO Home Radios** HARRISON Radiators **DELCO Hydraulic Brakes**



Available everywhere through

United Motors distributors

Support the National

BRAKE-CHECK CAMPAIGN

Sponsored by the International Association of Chiefs of Police

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Machine Finished

Alert mechanics everywhere have found Johnson GENERAL PURPOSE Bearings the ideal answer to their automotive bushing requirements. From our more than 800 sizes they are able to select the correct size for many applications. Sometimes a slight alteration will provide the correct bearing. Every General Purpose Bearing is of the highest quality possible, easy to machine or drill. Any type oil groove can be added. Why not keep a small stock on hand for an emergency? Reasonably good service is available on most sizes.

Catalogue

76 Pages lists and describes the most complete stock bearing service available. It's FREE,







SAE Dayton Meeting Reports Developments

Solution of many engineering problems with resulting improvement in the performance of military aircraft was reported at the Aeronautic Meeting of the Southern Ohio Section. Society of Automotive Engineers, in Dayton Engineers' Club at Dayton. The meeting was cone of a series of local war emergency sessions being held by SAE Sections to promote the dissemination of pertinent war engineering information in war-production centers.

Ray G. Holt, of Pesco Products Co., Cleveland, Ohio, in one of the reports, described the development of three phase, 400-cycle, 208-volt alternating current electric motors, some of "flea power" size, but tremendous strength which satisfactorily perform heavyduty control jobs, such as pumping fuel and air, operating propeller-feathering and wheel-retracting mechanisms.

SAE President James M. Crawford, of Detroit, and Lester Steffens, of Socony-Vacuum Oil Co., Inc., Paulsboro, N. J., were guest speakers at the evening dinner session which closed the meeting.

Sales Head Named

Ken Clapp, vice president of Balcrank, Inc., Cincinnati, Ohio, is announcing the appointment of Ray P. Summers as general sales manager of the Lubrication Equipment Division. Clapp and Summers have been associated in the automotive and oil equipment industry for many years.

Problem Clinics

The Retail Gasoline Dealers Association announces a series of Problem Clinics in cities throughout the states in which the association is active. The purpose of these Problem Clinics is to help gasoline dealers overcome and eliminate difficulties that are interfering with the smooth functioning of the Government's rationing program.

Harry R. Wainright, executive director of RGDA, believes it will prove of great service to the gasoline industry, the rationing program and to car

owners.

"From the beginning of gasoline restriction," he reported, "the retail gasoline dealers have made every effort to live up to the letter of the law in helping the Government make gasoline rationing an example of perfect teamwork despite unfamiliar regulations and forms. Therefore at these clinics, the dealer can frankly discuss his problem with an RGDA representative who is well qualified to aid in reaching a solution."

Ton't get caught "
"at the end of the line" Balis antay P. ger of vision. assoio br A880-ORDER YOUR POSTWAR ARO roblem states active. n Clins over-LUBRICATING EQUIPMENT NOW! es that h funeration-Foresight is better than hindsight! Place disappointment for those who fail to order tive diyour order now for after-the-war delivery of ll prove early. dependable and efficient ARO Lubricating e indus-So right now-use foresight and be first to car Equipment! with new equipment to attract tomorrow's business! Write today for Bulletin No. 1013, Your "priority number" at ARO is the oline redate of your order. Of course we'll rush proshowing models and prices-including many retail duction, postwar-but continued scarcity of ARO models for immediate delivery. The Aro every many materials will mean delay and Equipment Corporation, Bryan, Ohio. of the nt make of per-

familiar efore at frankly RGDA

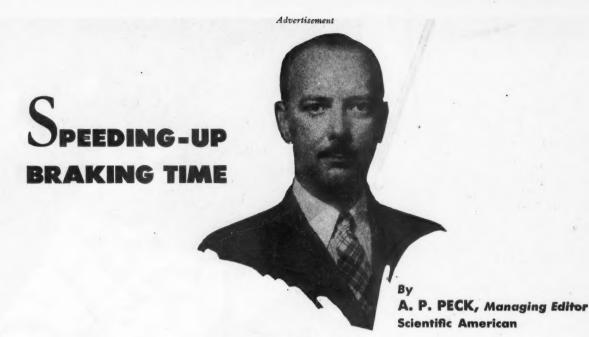
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THE first automobiles had crude braking systems, but in most cases they were ample for the purpose since the chug-chug cars of the early 1900's had little competition on the roads of their day. Soon came the four-wheel brake system and then the hydraulics. But, essentially, tradition was followed despite the obvious need for a still more effective means of stopping cars.

When motor-car production once more gets underway in post-war days and the estimated five-million-new-cars-annually start to roll on our highways, will traffic accidents — the "unavoidable" smacks in stop-and-go traffic and on the open road — climb in like proportion? Or will "power braking," as exemplified by the already available Vacdraulic system, do its part in avoiding these accidents by decreasing the time and distances necessary for stopping cars from a given speed?

In considering the overall subject of motor vehicle braking time — whether truck or passenger car — it must be remembered that two separate and distinct time factors enter the picture. First there is the human reaction time lag between the instant when the driver realizes that he must apply his brakes and the instant when his foot starts to apply enough pressure to the pedal to actuate the braking system. Second, there is the time required for the braking system to bring the car to a stop.

When a vehicle equipped with what are considered today to be "good brakes" is traveling at 30 m.p.h., it will move 33 feet along the highway between the time when the average driver sees trouble ahead and the time when he starts to apply his brakes. But this 33 feet is less than half the story. By the time the vehicle is brought to a full

stop, it will have traveled at least another 47 feet or possibly much more!

Here we have a total of at least 80 feet of travel with a vehicle equipped with good brakes before a stop can be made from 30 m.p.h. And a lot can happen in 80 feet in congested traffic!

The figures just cited might be called "ideal" figures. That is, the human reaction time is what might be expected when the driver is fresh, alert, not tired. But when he has been driving for hours his reaction time will increase and, likewise, the pressure which he can apply quickly to the brake pedal will decrease. In other words, the 80-feet stopping distance at 9 a.m. might increase to 110 feet at 4 p.m. after a long day's drive, but without any change in the braking system.

There is not much that can be done about human reaction time itself, but the increased use of power braking, with its accompanying "feather-touch stopability" can compensate for variations by decreasing materially the time lag in the braking system. That is, if the driver has to apply heavy pressure to the pedal in order to produce the required braking action, the total time required to stop the vehicle is increased. Anything that can be done to decrease the needed pressure will also decrease the distance which the vehicle will travel before coming to a stop.

In the Vacdraulic brake power booster, the effective pressure of the foot is multiplied many times. For example — a 50-pound pressure on the pedal is transmitted as 1000 pounds of braking action. Thus, while the human reaction time is not decreased, the application reaction of the booster more than compensates. This brake power booster has no mechanical connections

to cause an operating lag or to get out of adjustment. It is connected directly in the hydraulic line and to the intake manifold of the engine. Thus it utilizes the vacuum produced by the engine to multiply the power and stopping energy exerted on the brake drums. In this way it gives to any good hydraulic brake an important factor of increased safety and of split-second stopability.

Brake power boosters, with feather-touch pedal action, are becoming increasingly important on our highways as well as in congested city traffic. They enable a 100-pound high-school girl to exert the same braking action as quickly as a husky 200-pound truck driver. And, furthermore, they make it possible for that same truck driver to keep as complete braking control over his vehicle when he is muscle-weary after a long trip as he could exert when he started out fresh in the morning.

The whole problem of motor vehicle braking may be summed up in this manner: A good braking system remains constant in action regardless of time of day or night or of distance traveled; the reaction time of the driver varies over a wide range determined by physical condition, age, fatigue, excitement, and traffic distractions. The faster a brake will produce the required stopability under a light touch of the foot on the pedal, the safer will be the driver despite his changing reaction time.

Because of these facts it seems inevitable that brake power boosters will become standard equipment on passenger cars as well as commercial vehicles of all kinds. Perhaps even more important at the moment is that Vacdrallic power boosters can be applied to any pre-war cars equipped with good hydraulic brakes, providing smoother, safer. faster brake action.





Partition Parties (SEE)

Don't put that hood down yet! Take a look at the ignition cable. Have heat and oil and moisture cut their notches yet? Engine power and pep that leak through those tiny cracks waste precious gas. Remember, tape can't hold back the 10,000 V in a cable. So do your customer and yourself a good turn. Suggest replacement with Quality Brand Ignition Cable—it means an extra profitable sale.



Exhaust

(Continued from page 22)

out tail pipe. Leaks occuring at any of these named points may not only produce an objectionable noise, but may fill the car interior with obnoxious fumes which are not only objectionable to its occupants, but contain a certain amount of carbon monoxide dangerous to anyone riding in the car. Whenever such leaks are discovered, the defective part or parts should be replaced without question.

Frequent visual inspections and proper care of the exhaust system will contribute greatly to the smooth operation of the engine.

Crosley Plans Postwar Car

Plans to produce a small fourcylinder car in the postwar period have been announced by Powel Crosley, Jr., president of Crosley Corporation. He did not state whether the car would be built by Crosley Corporation or by some other manufacturer, but said that it would have more power and better appearance than the two-cylinder model which the company built before the war.

He stated that there is a definite need and market for a small automobile in the United States.

New Location

Clawson & Bals, Inc., Chicago engine bearing manufacturer, has recently completed moving its general offices and service department to 2508 S. Michigan Ave., Chicago 16. The new quarters are conveniently located in the central automotive district and are much larger and more efficient. The space thus vacated in the factory at 4701 W. Lake Street has already been put to use for expanded production facilities.

Cooling System Manual

The Warner-Patterson Co., 920 S. Michigan Ave., Chicago 5, Ill., has just announced a new manual covering the proper conditioning of the automotive cooling system.

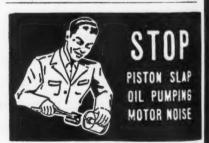
The booklet is well illustrated in colors and is written in simple easily understood terms.

To Aid Rubber Program

Col. J. L. Cochrun, vice-president of the Seiberling Rubber Co., Akron, Ohio, will assist John L. Collyer, special director of rubber programs, for a limited period beginning this week, the War Production Board announced. Colonel Cochrun's first assignment relates to essential needs.

Personnel Changes

Appointment of L. T. Kouns as St. Louis zone manager of Nash-Kelvinator Corp. has been announced by H. C. Doss, vice-president of Nash-Kelvinator Corp. Mr. Kouns succeeds D. D. Boden, who has been granted a leave of absence because of illness.



WITH

MASTER RECAMS

MASTER RECAMS are individually deals and for all late model sers; essily installed without removing pistems. The graftshie way to Stop Plotos Siap, Oil Pumping and Moter Noise.



50° EACH

REGULAR DISCOUNTS TO JOBBERS AND DEALERS

WHERRY ENGINEERING COMPANY 3227-29 Morgantord Rd., ST. LOUIS 16, MO.

Wagner **Advertising** in Post and Collier's creates greater consumer demand for Wagner Lockheed No. 21 Fluid

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All of the 6,000,000 copies of the Post and Collier's that carry the advertisement reproduced are salesmen for Lockheed No. 21 fluid. By reminding your customers that "FOR SAFETY'S SAKE – BRAKE FLUID SHOULD BE CHECKED TWICE A YEAR," they boost the demand and help you increase sales. . . . And you know from experience that Lockheed No. 21 Hydraulic Brake Fluid makes and keeps friends be-cause of its dependability.

If you do not stock Wagner Lockheed products and therefore are not reaping the benefits, consult your néarest Wagner jobber relative to your procuring Lockheed hydraulic brake parts and fluid and a sign to identify you with this national program.... Also ask about CoMaX brake lining.

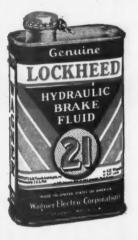
BRAKE FLUID SHOULD BE CHECKED TWICE A YEAR FOR SAFETY

You have no one but yourself to blame if you neglect the brake system of your automobile . . . Even the best of brake fluids, such as Wagner Lockheed No. 21, can't be expected to function indefinitely. Moisture (from condensation), tiny particles of dirt, dust, and other abrasive materials are "breathed" into a hydraulic brake system. In time these elements can cause serious brake difficulties.

Just as you have learned the wisdom of having motor oil checked at regular intervals, it is equally wise to have brake fluid checked to determine whether the fluid needs to be replaced (or for more fluid to be added to bring it up to the proper level)... Take heed now, and make it a point to drive in where you see the

> Wagner red, white, and blue sign. It identifies the place as one using genuine Wagner Lockheed Hydraulic Brake Parts and Fluid-products recognized for quality and dependability.

> LOCKHEED NO. 21 BRAKE FLUID functions under all driving temperatures. It amply lubricates the system, and maintains its chemical characteristics over a long period of time. Used by car manufacturers, and recommended for all cars and trucks having hydraulic brakes.



Wagner Electric Corporation

ESTABLISHED 1891
6498 Plymouth Ave., St. Louis 14, Mo., U. S. A.
(In Canada: Wagner Brake Company Limited, Toronto)





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REWOUND ARMATURES

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We stock only genuine used parts. All are thereughly tested and elemend with the most medice methods and equipment. Each part corries our memoy-back guarantee.

Write for price list 8

HASCO PRODUCTS, INC.



Cut muffler and pipe installation in

half-with the new, patented AP

Muffler Remover. Increase your labor-

Slipping Clutch

(Continued from page 50)

high after you make the shift. This owner said the slippin' occurred after shiftin' into second or high. That means we've got to work on the low and reverse solenoid. That's right here on the rear of the control valve.

"You see these screws? One is a Allen head screw; the other has a knurled head. By turnin' 'em in, you can increase the engine speed. Turnin' 'em out slows it down. The Allen screw controls the low and reverse starts. See where it is now? Well, switch on the ignition."

Tommy obeyed. When he returned, Pop pointed to the screw. "See how it's moved into the solenoid body! That means the action is okay. Now get in and start the car. We'll see how the engagement is in low."

The start Tommy made was smooth, with the engine turning over about 900 r.n.m.

"Now, I'll turn in the knurled screw a quarter of a turn at a time," said Pop, "Start her in second."

When Tommy stepped on the accelerator, the clutch still slipped. So Pop gave the screw another quarter turn. This time the engagement was smooth and firm.

"That does it," said Pop, and Tommy cut the ignition.

"Will I put it out on the lot?"
Tommy asked.

"Not yet," replied Pop. We ought to check the engine. With an Electromatic clutch, it's got to be pretty well tuned and idlin' smooth. If it ain't, the clutch don't work as well as it ought to."

"Is slipping the only trouble you ever have?"

"No. Sometimes owners complain the engine speed is too low or too high after a part-throttle start in low or reverse. And sometimes the car free wheels, or you get a lurch when shiftin' down from high or when you touch the accelerator again after driftin' in second. And sometimes you have to move the pedal too far before the clutch acts. Of course, a switch or a solenoid can go bad once in a while.

"The main thing about this kind of a clutch is to see the air cleaner in the airbleed line is always clean and that no dirt gets in the hose and pipin'. Then the piston in the power cylinder might have to be dipped in vacuum-cylinder oil if it starts stickin'. And the throttle and accelerator linkage has to be in good shape.

"There's one more thing," he pointed out. "Every model Packard has a control valve that's calibrated for that model and no other car. You gofta be sure you don't install the wrong type valve."

wrong type valve."
"I hope I know more about it if I

ever have to install one."
"You will. I'll let you have the (Continued on page 72)

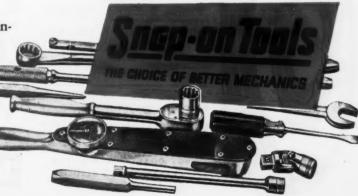
IT'S A SAGOOR On the "tough-nuts"
Watch a Snapon Because they handle every nut turning job Go to Work!

In the sleekly streamlined structure of a modern plane, *tough nuts* are plentiful. Blocked, hidden, fox-holed in sharply restricted spaces, they defy ordinary wrenches to "reach in and do a job".

Along aviations' assembly lines and in maintenance shops, watch the Snap-ons go to work! Slim, flexible, dexterous, Snap-on "combinations" by-pass obstructions, slip into tight and tricky places, grip hidden nuts securely, turn them swiftly, solidly and safely.

Because they handle every nut turning job faster, easier and better, Snap-on wrenches have won the same outstanding preference in the aviation field that they long have held throughout the automotive industry. Everywhere they are "the choice of better mechanics". Write today for the 1945 Snap-on catalog.

SNAP-ON TOOLS CORPORATION
8036-E 28th AVENUE KENOSHA, WISCONSIN



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Fast, powerful, easily controlled. Can develop 60 tons pressure in 4 seconds, or gently push a press fit into place. Automatic pressure control. Mechanically duplicates any desired pressure; stops or reverses ram when pre-set pressure is reached. Foot pedal controls; adjustable bolster; movable ram head. For straightening; bending; riveting; assembling; disassembling, and many other everyday shop operations. Now's the time to get one. Good delivery.

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- AUTOMATIC PRESSURE CONTROL
- 20. 40. 60 TON MODELS
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SEE ONE WORK - MAIL THIS COUPON Lempco, Dept. M.A., Bedford, Ohio Gentlemen: Tell me nearest shop where I may see a Lempco Press. NAME RODUCT ADDRESS S BEDFORD · OHIO · U·S·A ESTABLISHED 1919 CITYSTATE

Slipping Clutch

(Continued from page 70)

chart I was talkin' about." He looked at his watch. "As soon as you sheck the engine, you can run the car out on the lot. If I don't have to see that new-rich owner in the shop again, I'll be able to enjoy my steak better tonight."

"Steak?" echoed Tommy.
"Yeah. A nice, big, juicy one,"
snapped Pop. "Right out of the middle of a halibut."

Keep Rolling

(Continued from page 26)

Ordnance trucks since landing on the European continent last July 4.

The company, located in a former Nazi supply warehouse in Belgium as of the end of January, is commanded by Captain Dickson L. Griffin, Kilgore, Texas.

The time limit for the stripping and rebuilding of used trucks is 72 hr., but the average vehicle is ready for reissue in 24 to 48 hr. after it enters the shop. Any vehicle taking more than 72 hr. to repair is replaced by another rebuilt model.

We tear down anything from jeeps to mammoth tank retrievers," said Captain Griffin, "and we often refit them with rebuilt used parts that are just as good as new. Occasionally we receive trucks that have been cracked up and then salvage their better parts for use on more serviceable vehicles."

Lieut. Henry P. Zalasko of Conneautville, Pa., shop officer, explained that every truck brought in goes through a standard process.

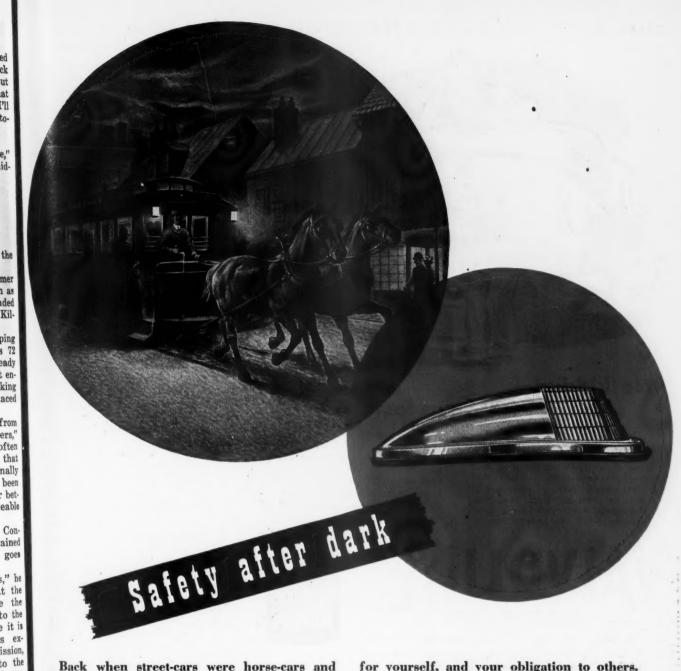
"We inspect them for defects," he said, "and issue a job order at the shop office. Then we allocate the work, and the truck is taken into the automotive repair section where it is stripped down. Everything is examined from the motor, transmission, differential, clutch and axles to the isinglass in the side curtains and even the tarpaulins. When the job is done,

(Continued on page 74)





IAY,



Back when street-cars were horse-cars and you hopped on-and-off between stops, local authorities insisted that each car carry lamps for safety after dark.

Today, proper lighting is the most important single factor in controlling night highway-accidents, keeping down property-loss, and saving human life. Buying good lights and keeping them in order is cheap protection for yourself, and your obligation to others.

Arrow makes available a complete line of lights for every type of vehicle. Sturdy and well-designed like the streamlined marker light in the illustration, they are a practical contribution to safety after dark. See your jobber for the Arrow lights you need or send for catalog. Arrow Safety Device Company, Mount Holly, New Jersey.

FOR SAFETY

AFTER DARK



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VALVOLINE . . . FIRST OF THE PENNSYLVANIA OILS



No kiddin' —
some day it'll go as fast as a Jeep!"

The youngest generation may not remember what real speed feels like, but those who do are dreaming of the day when the open road will beckon again. When that day comes, over-age motors will take a beating. Urge your customers to start conditioning their motors NOW for the strain of *

peacetime speeds—with Valvoline, the oil that keeps the engine clean as it lubricates. Through the postwar years, they'll be coming back to you REGULARLY for the extra protection of Valvoline—start them NOW with a Spring change-over!

VALVOLINE MOTOR OIL

COSTS MORE TO MAKE - COSTS LESS TO USE

Unconditionally Guaranteed

VALVOLINE OIL COMPANY

431 Main St., Dept. 12E, Cincinnati 2, Ohio

New York-Atlanta-Chicago-Detroit-Los Angeles-Vancouver-Washington, D. C .-- Refinery at Butler, Pa.

Keep Rolling

(Continued from page 72)

the new motor set, the canvas repaired and the truck spot-painted, it is given a road test and final inspection before being turned over to the using unit. Out of every 50 vehicles brought in, we turn out 40 to 45 rebuilt jobs. We can replace an engine in four to six hours, a clutch is installed in less than an hour, a transmission takes about two hours to fit, and a transfer case can be completed in 90 minutes."

M/Sgt. F. H. Stoltenburgh, Arlington, Wis., shop foreman and master mechanic, described the first days of operation on the continent.

"We landed on July 4," he said, "and set up in a field just below the invasion beaches to service the trucks supplying the men pounding the Wehrmacht at St. Lo. We acted as a collecting point for captured materiel and turned out 5500 enemy weapons—Czech, French, German, Austrian, Belgian, Italian and Rumanian makes. We also repaired more than 5000 Nazi vehicles and repainted them, marking them with the Allied white star, for use by United Nations forces."

When the Red Ball Highway was going full blast rushing supplies to the armies battering the Nazi frontier defenses, the company acted as a highway maintenance unit, operating patrols 24 hours a day, and refitting hundreds of trucks every week.

The company has its shop set up on skids, so entire units can be moved intact. These include the welding shop.

Piper cub planes are used to spot trouble zones on French, Belgian, Dutch and German roads and to send out Ordnance wrecking crews by radio when it is necessary. There are no American vehicles bogged down on the muddy roads in western Europe, for this aircraft radio system gets material up to the front when it is fit to fight and back to Ordnance repair depots when it needs major repair and overhaul. Minor repairs are done on the spot.

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No. 250 MILLING FIXTURE VISE

Every garage, dealer, service shop should have thus
fixture. Fits any 8"-9"-10" South Bend, Atlas,
Crafteman, Sheldon or other lathes of similar sizes.
Graduated vertical feed screw and 360° graduation
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DO MILLING ON YOUR LATHE
No shop fixture is more important. Numerous milling operations can be done on your lathe, and it soon pays for itself in repairing parts or making new parts.
When ordering give make also sizes of lathe and T-siot on cross silde. Price \$24.75.
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ONLY \$2.95 COMPLETE!

Grinds round shank drill points from No. 42 to 11/6" diameter. Grinds old drills like new. Grinds short, medium and long twist drills up to 11". The grinder that gives a rounded point.

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GRIND YOUR DRILLS LIKE FACTORY IN 25 SECONDS!
Get a perfect center and clearance in three different point angles—590—690—and 880. No machine shoot or work shop should be without the super drill grinder.

Ask your jobber to supply—if he cannot serve you, mail your check of money order for only \$2.95, with your printed address—the SUPER GRINDER will come to you by return mail, postage paid.

The ideal tool for the hobbyist! Available now— Buy it today. A. D. MCBURNEY

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AGE

LOOK

TO ONE MAN FOR COMPLETE SERVICE

- GENUINE TOLEDO PARTS
- A MODERN MACHINE SHOP

Your Toledo distributor has the right combination to help you turn out completely satisfactory jobs in your shop with a minimum of delay and effort—a complete stock of Toledo automotive parts, of which there are no finer in the world, and his machine shop for any precision work you may need. Get in the habit of depending on your Toledo jobber for everything and you'll find it's the right way to do business.



The TOLEDO

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MAY, 1945

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EXHAUST SYSTEMS THE MAREMONT WAY

FOR A NEW MAREMONT MUFFLER

These 12 different sales helps comprise the complete program:

- 1. Colorful Utility Display Stand
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- 5. Large weather-proof streamers
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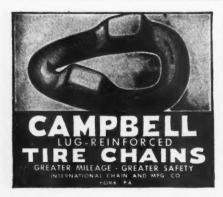


Now you can again get Edison Spark Plugs with the permanent, built-in "Spun-On" copper gasket

- good for the life of the plug
- provides 100% leakproof seal between block and plug
- assures even pressure all around when installing plugs
- dissipates heat more efficiently

Only Edison Spark Plugs are made with the "Spun-On" copper gasket—another reason why it pays to replace with Edison's for longer life, and more power.







Valves

(Continued from page 56)

particularly any which might cause local hot spots in the vicinity of the valves. It is also important to be sure that there are no water leaks into the oil pan as such leaks not only increase sludge formation and also cause valve spring breakage.

Another important check to make is the exhaust system, including the muffler to insure against any back pressure which would tend to increase valve temperatures, shorten their life and, of course, reduce power.

When installing the cylinder head, the cap screws or hold-down nuts, should be tightened with a torque wrench and in the proper sequence.

The tuning of the engine also has an important bearing on valve life, as lean carburetor mixtures increase combustion and valve temperatures; tappets that are adjusted too close will cause valves to burn; retarded spark or a spark too far advanced. will increase engine temperature; any leaks in the intake system will make the mixture to one or more cylinders too lean, and increase engine temperatures; excessive oil, from whatever cause, reaching the combustion chamber may cause valve pitting and also sticking valves.

Gas Turbines

(Continued from page 30)

and driving a built-in compressor or supercharger for ramming a charge of high pressure air into the intake manifold of the engine. Actually, your engine loses a lot of power through the exhaust pipe. The gas turbine supercharger turns much of the waste into useful work. In fact it is claimed that turbosuperchargers sometimes increase the output of an engine by as much as 50 per cent.

We are also told by experts that the supercharger arrangement mentioned above is a natural and could be worked out for heavy-duty engines, at least without too much difficulty. That could be one of the early moves after the industry goes back to work

on a peacetime basis.

However, most people when talking about gas turbines are thinking about the gas turbine as something that will replace your engine. That's a long way off. Look at the record. Gas turbines have been in use to a limited extent all over the world. One of the Alps mountain roadbeds in Switzerland has a gas turbine locomotive which has been pulling trains for over two years. But bear in mind that the jobs in operation today are big, running from 1000 to 2500 hp. each. The people making these machines still don't know how to build a small They are having their troubles building even the big ones.

Besides, the gas turbine as a prime (Continued on page 80)

WAS A BORN MERCHANT

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AGE

Idaho was 'Tod's home through boyhood and youth. He was voted "All Pacific Coast End" while a member of the State University's football squad, graduating as a civil engineer.



2 Tod followed engineering for 10 years. Then, in a brief lull between jobs during 1918, he was astonished to learn how prosperous a neighbor had become selling automobiles for a local dealer.



That was enough for Tod. He took a job as cub salesman for the same dealer. Two years later his energy and natural talent for the work earned him the title of sales manager.



Then the urge struck him to go into business for himself. So Tod traveled east and established an automobile dealership. It flourished. He established another and it also flourished.



In 1926, Tod returned to the Pacific Coast. He bought out a dealer who was about to retire, and developed the business successfully. Six years later, he became a Dodge-Plymouth dealer.



Always an enterprising merchant, Tod's normal peacetime organization includes more than 200 people. Now, his automotive maintenance and other wartime operations are on a large scale.

Thousands of young men just like Tod have plenty of ambition. They love business life and want to better themselves... be successful in their own right.

Most of all, they want to choose for themselves the career for which they are best fitted; and, at the same time be free to progress as far as their beliefs, desires and industriousness can take them.

When automobiles are made again, the

automobile business should continue to offer men of initiative, energy and integrity just such opportunities as Tod found for himself.

CHRYSLER CORPORATION

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KEEP ON BUYING WAR BONDS



A Good Brand Always Stands Out

A good name is a product's most valued virtue. In the case of automotive finishing materials the Brand Name "McALEER" has always stood for the Best in Quality for over 20 years. TODAY ... right now is the time to tie up to McAleer's Line of Quality Controlled Products. It's a sure way of roping in more service business.

MEMBER



Keep On Buying WAR BONDS And Keep Them!



Gas Turbines

(Continued from page 78)

mover is a very complicated piece of machinery. It is an ideal type of powerplant, a purely rotating machine instead of a piston type like a gasoline engine with none of the vibration and engine pulsations characteristic of reciprocating engines. But you have to use one or more gas turbines, one or more special com-pressors, heat exchangers, recuperators and a lot of other equipment more familiar to stationary engineers than to garage mechanics.

Finally, it will take time before the big units have been developed to a state of perfection. Afterwards, and that should be a matter of some years, the experts can put their minds on making gas turbines smaller. One problem still to be solved is the finding of a metal that will withstand continuous temperatures in the vicinity of 2000 deg. in the turbine. Our feeling is that you can forget about gas turbines for some time to come. They will not replace the gasoline engine or diesel in your truck for many years.

But you should be on the lookout for a gas turbine supercharger. Remember it's not the same as the superchargers you have seen, the kind driven from the engine. The one referred to has no mechanical hookup with the engine. It takes its power from the heat of the exhaust gases, all of which is wasted today, and then drives a built-in compressor for ramming air under pressure into the intake manifold system of your engine. The equipment naturally adds to the cost of the engine, but in return you get an engine of about the same size and about the same fuel operating cost except that it delivers up to 50 per cent more horsepower.

A new catalog of Hot Dip Tanks for automotive, aviation, marine and diesel motor, radiator, and parts cleaning and degreasing has just been issued by the Aeroil Burner Co., Inc., West New York, N. J.





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plays an important part in WAR PROGRAM

by providing fast, thorough, and economical lubrication of cars, trucks, buses and other motor vehicles so important in the transportation of war materials and men engaged in war production. Ask your nearest jobber, or write us for details on this equipment.

LINCOLN ENGINEERING COMPANY General Offices, St. Louis, Mo. Make Big Profits on Small Investment in
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Ask your Shurhit jobber or write us for details on General Ignition Assortments of fast-moving parts ... Contact Points ... Condensers ... Contact Points ... Condensers ... Coils... Switches, etc.

SHURHIT PRODUCTS, INC.

Lubrication

(Continued from page 31)

not stopped NOW. (5) As safety factors also are involved (and accidents must be minimized to preserve our rapidly aging cars). CUS. tomers are told how important is to have checks made on oil and gas gages, ammeter and temperature in. dicators checked, also operating condition of windshield wipers and horns. Inspect all lights for burned out bulbs, broken lenses; directional signals and auxiliary lights; inspect cooling systems for leaks and condition of hose; inspect fan belt, oil filters, heaters and carburetors.

Advertising schedules and floor sales programs stress lubrication as a vital factor at any time, but that it is doubly important in war time as virtually every car is at least three years old, and therefore must be lubricated more often to prevent needless wear of cars which cannot be replaced for months, possibly years.

Sales building methods on service are always in the interest of the customer. For example, explain the need of motor tune-ups to save rationed gasoline—carburetor overhauling and cleaning may save up to 25 per cent on gasoline—and when you turn in noticeable mileage improvements in today's gasoline restrictions, you gain a booster for your service that is worth pages of advertising space.

The same factor holds true with wheel aligning and balancing, both as safety measures and tire conservation—to make those almost irreplaceable tires last longer safely. Under the wartime service schedules, the company employs 18 shop men in all departments of their complete automotive service and average 700 jobs per month, but, as Mr. Poinsatte explained, owing to cars piling up mileage and years, major overhauling has increased materially, resulting in larger job tickets.

Wrecking jobs, for example, run to as much as \$800 and \$900, and like the major rebuilding job, are essential to maintain our transportation.

The company operates seven trucks in all. Four are towing units. Two of these are big ones, having powerdriven hoists. Long before the thought of a major war occurred, the Poin-Al and satte management, Bill, Henry, owners, equipped their service departments with modern tools and shop equipment for complete automotive service. Listed in these major items are three hydraulic hoists, lubrication units, front wheel aligning equipment, brake relining machines, motor analyzers, full body work equipment, wheel balancing machines, and as mentioned above, complete towing units.

Waukegan, III.

MA

Short of Shop Labor? TZLER'S NEW THIS WILL HELP YOU GET THE WORK OUT

Ditzler's new GLOSS LACQUER sprays and handles just like good pre-war lacquer. It dries fast to a good luster and needs no sanding or compounding. It's easy to touch-up or spot-in.

This lacquer was developed before the war, has been tested under the most exacting conditions—and has proved very satisfactory in every respect. It is not a "war-baby" destined to disappear as soon as normal production is resumed. It is an important new addition to

the Ditzler line of products and will be just as important to you postwar as it is now.

Use it for all-over work on commercial jobs, passenger cars or sheet-metal without polishing. On custom jobs or spot work, use Ditzler Z-4 Polish for extra high luster.

Twelve popular colors now ready—others in preparation. Call your Ditzler jobber. Ditzler Color Division, Pittsburgh Plate Glass Company, 8000 W. Chicago Ave., Detroit 8, Mich.

MAY, 1945

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AGE |

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PROTECTION

Best ingredients, developed specially for tube patches and manufactured under constant laboratory control, insure the same high quality known to CAMEL users everywhere for more than 20 vears.



PROTECTION

The absolute guarantee of customer satisfaction against losing good-will of any user of CAMEL Patches at any time and under any condition protects both buyer and seller. Every CAMEL product in the complete line means triple protection!



Other CAMEL Products available in the complete line are: Quick Cure Gum, Tube Repair Kits, Garage-size Kits, Vulcanizing Cement, Rubber Cement, Tire Patch Cement, Vulcanizing Kits, and Valve Stem Heat Units.

Foreign Markets Want U. S. Autos

Foreign dealers are expecting "engineering and styling miracles" from America's automobile industry and are anxious to handle American products on a volume basis in the postwar period, according to Joseph W. Frazer, chairman of Graham-Paige Motors Corporation.

"Impressed by the fact that the great majority of United Nations' military vehicles have been produced in this country and that our engineers have led in the development of the war's best motorized equipment, foreign sales representatives are deluging American automobile manufacturers with franchise requests."

The Graham-Paige chairman said that his company alone has received letters from dealers on every continent of the world.

"Never before," he said, "have the products of American industry been held in such favor in foreign markets. A considerable amount of our wartime production may find use in the postwar period. The Russians, for instance, already are using tractors, similar to our 'Alligator.'

NSPA Recommends Steps On Surplus War Material

Representing the automotive main tenance industry in connection with surplus war material, the National Standard Parts Association recently made two presentations to government officials who are directly concerned with this major war problem.

One presentation, a jumbo poster. pointed to the necessity for an uninterrupted flow of materials through established channels of distribution and was used effectively in meetings with surplus materials executives and interested members of congress.

The second presentation, a 9-page letter addressed to the Office of Sur. plus Property, Treasury Procurement, discussed existing policies and contained specific recommendations on behalf of the maintenance industry. Creating of three industry committees was urged, these to work with Treasury Procurement in program for the efficient sale and distribution of war surpluses of maintenance merchandise.

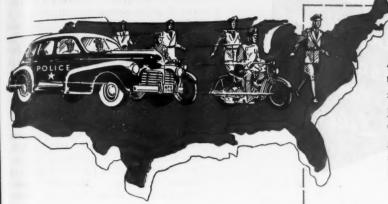
Ohio Site for **Bearing Plant**

Cleveland Graphite Bronze Co. has purchased a plant at Bridgeport, Ohio, with 20,000 square feet of floor space and an estimated capacity of 1.5 to 2 million engine bearings a month. The move was made because manpower to operate needed additional capacity was not available in Cleveland, according to James L. Myers, vice president.

The new plant will employ 250 to 300 persons when at full capacity.



THE BRAKE CHECK PROGRAM



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April 15 to June 1, 1945, the International Association of Chiefs of Police is sponsoring a national "brake emphasis" program that is designed to make the driving public conscious of the need of good brakes. It is supported by various associations and civic groups, and is being widely publicized.



MR. JOBBER AND DEALER:

Are you prepared to supply the oil seals and other things needed to put brakes in good order?



The Modern Seal with Synthetic Rubber Sealing Element

The superiority of this type of seal has been proved in the most critical applications in war equipment.

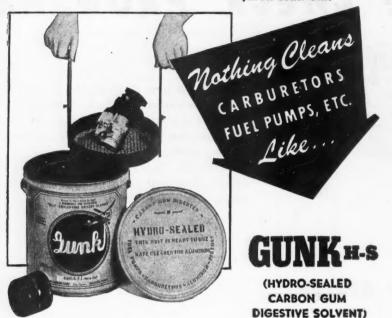
NOW AVAILABLE . . . These better oil seals can be supplied now for automotive replacement.

VICTOR MANUFACTURING & GASKET CO.

P. O. Box 1333, Chicago 90, Illinois, U. S. A.

VICTOR OIL SEALS

List Price \$14.00. See Coupon For Dealer Cost.



Guaranteed to exceed the performance requirements of the most recent army, navy and air force degreasing and decarbonizing compound specifications. Send for Catalog Data.

Available in handy steel kit containing steel dunking screen and dryer basket. Rinses easily with dry cleaning solvents or water.

The only complete decarbonizing process

in package form.

CLEANS AND DECARBONIZES:-

Spark Plugs, Valves, Motor Block, Diesel Fuel Injectors, Aluminum Pistons, Heat Transfer Units; Airplane Engine Parts, Anti-Aircraft Guns, Oil Coolers.



HOW TO BUY . . . ASK YOUR JOBBER SALESMAN!

or use self-service coupon for express shipment.

CURRAN CORPORATION, Malden, Mass.

Not in stock at my jobber . . . attached to my business letterhead is my check, or M. O. as the condition that you ship me a 5-gallon size, GUNK at dealer's net cost, \$9.90—(add 10% west of the Mississippi) by FAST PREPAID RAILWAY EXPRESS.

Address.

City and State.





Grease Gun Unit

The new Lincoln Handi-Luber makes it possible to convert an ordinary original grease container into a 25-lb. high-pressure grease gun. Low in cost, this unit is suited for use in shops, mills, or factories, and for lubricating contractors' equipment. It is the latest addition to the line of lubricating equipment manufactured by the Lincoln Engineering Co., St. Louis 20, Mo.

Model 1266 Handi-Luber is a com-

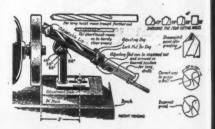
Model 1266 Handi-Luber is a compact, sturdily-built high pressure grease pump equipped with a 5-ft hose assembly with hydraulic coupler for contacting all KLEENSEAL and hydraulic fittings. Manually operated, dispenses either light cup grease or viscous types; easily develops 5000 P.S.I. pressure.

Stripping Formula

SOAX, a preparation based on the "70 STRIPPER" formula which was developed for stripping airplane engines and parts of grease, sludge, paints, has been compounded now to meet the needs of the automotive industry for degreasing and cleaning engines, pistons, motor blocks and other parts. The preparation is manufactured by the E. A. Gerlach Co., Philadelphia 40, Pa.

Improved Drill Aid

An improved model of the Super Drill Grinding Attachment has just been announced by A. D. McBurney, 939 West 6th St., Los Angeles 14, Calif. This new precision-made fixture has a vertical post and provision for accurately grinding round shank drills in four point angles: 49°, 59°, 69°, and 88°. The Super Drill Grinder will hold drills from 3/32 in. to 1 1/16



in. in diameter and will sharpen short, medium and long twist drills from 1% in. up to and including 11 in. in length. Use of the fixture gives true drill centers, desired clearance, and rounded points.

Price delivered complete is only \$2.95. Immediately available. No priorities required.

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OUNG voices, fresh and natural, making the old songs live again — is there anything sweeter?

When they come to the last few bars of "America The Beautiful" — there'll be many in the audience dabbing at their eyes with handkerchiefs.

Children like these will be singing together, playing together, working together for years. That's why they will fit so well into the teamwork of American life.

The interlocking American system of production is also built on teamwork. It is the key both to our peacetime output and to the immense production that is helping to win this war.

Your own General Motors car is a good example. No single person master-minded it. Many different groups combined to bring it to its high state of efficiency.

Engineers and research men helped design it. Specialists in springing smoothed its ride. Expert designers patterned its steel body — workers lent their skill to producing it — many businesses, large and small, provided such vital items as tires, carburetors, safety glass and the like.

This system of teamwork will shape the future to new and better forms as it now shapes present war products for the purposes of Victory.

No one knows what the homes, cars,

or refrigerators of tomorrow will be like. But if we profit by the experience of the past, and hold to the principles that made America great, we may fairly count the years ahead as our country's richest and most productive.

And General Motors, long dedicated to making "more and better things for more people," may be relied on to play its part to the fullest.

GENERAL MOTORS

"VICTORY IS OUR BUSINESS"

CHEVROLET • PONTIAC • OLDSMOBILE • BUICK CADILLAC • BODY BY FISHER • FRIGIDAIRE GMC TRUCK AND COACH • GM DIESEL

Every Sunday Afternoon
GENERAL MOTORS SYMPHONY OF THE AIR
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THE SATURDAY EVENING POST

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MOTOR AGE

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People purchase products that are pictured in

POST

BALANCE-ENGINEERED ... Kellogg-American Kellogg-American

for SMOOTH, QUIET OPERATION

Smooth, quiet operation is outward evidence that KELLOGG-AMERICAN air compressors are inwardly "balance-engineered." All moving parts are accurately balanced and perfect alignment is maintained through engineered design and extreme precision of manufacture. Thus friction and wear are reduced. Operation is smooth and quiet.

"Balance-engineering," plus other KELLOGG-AMERICAN engineered extras, means more cubic feet of air per kilowatt hour. Volumetric efficiency is high. Operating costs are low. Compressor life is long and trouble-free. KELLOGG-AMERICAN "balance-engineering" means more air per dollar.







Develop New Sealer

A water and heat-proof material of flowing consistency for sealing joints, and for use as a rust-preventative between panels has been developed by The Dolphin Paint & Varnish Co., 914 Champlain St., Toledo 3, Ohio, and will be marketed as No. 1780-F Dolfinite Sealer.

Non-corrosive, flexible and elastic, it is also used to seal spot welded seams where the roof and side panel are joined. It will not affect paint and lacquer, is non-bleeding, and may be applied by hand or air pressure gun. It will withstand the customary oven heat used for drying paint coats, remaining plastic, but without oozing or sagging.

Further details and a copy of the new Dolfinite catalog of automotive cements, sealers and compounds may be had by addressing the manufacturer.

Throttle Body

The Cleveland Carburetor Mfg. Co., 2012 Chester Ave., Cleveland 14, Ohio, announces a replacement throttle body, for popular carburetors, which contains an adjustable compensating air bleed.

This feature is claimed by the manufacturer to give better gasoline mileage, slower idling speed, reduced carbon formation, quick throttle response, easy starting, increased power output, eliminates engine roughness and stalling and less gear shifting.

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The throttle body is priced at \$7.

Floor Compound

A new highly concentrated treatment for cement floors, etc., is said to provide coverage for at least 1000 sq. ft. per gal. The cost of a treatment is reduced to a small fraction of a cent per square foot.

This material, known as Synkrete Concentrate, is diluted with three parts of water before use, 1 gal. of concentrate thus giving 4 gal. of ready-to-use Synkrete.

In this form, Synkrete is easily applied with mop, brush, long handled broom or sprinkler. It soaks deep into the pores of dusting concrete where it hardens to form a rocklike, water-insoluble mass that reinforces the binder and prevents surface particles from being worn away. After treatment with Synkrete, cement floors are far hardermore resistant to traffic, water infiltration, oils, greases and chemicals. They are easier to maintain with less "drag" in sweeping. The effect of a treatment is lasting.

Information about Synkrete Concentrate can be obtained upon request from Synthex Products Co., 2 W. 45th St., New York 19, N. Y.

MAY,



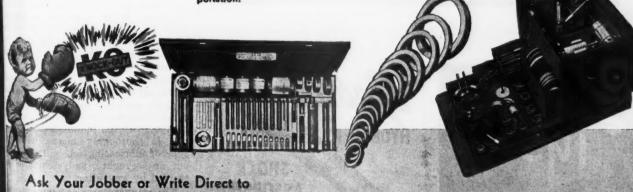
The valve—the pulse beat of transportation—is to the automobile, truck or tractor, as the heart beat is to you and me. You don't take many chances with that ticker, do you? Neither can you risk operating your truck or automobile without periodic check-up.

When you go to a doctor for a physical checkup, he invariably starts by checking your pulse. That's where a check-up on a motor vehicle must begin! The older one gets the more often he goes for a check-up. The older your car becomes, the more often it too must be serviced.

A doctor or a mechanic is no better than the equipment with which he works. Knock-Out products represent years of experience, research and development in meeting the valve requirements of motor vehicles. Knock-Out Valve Seat Grinders, Valve Seat Insert Tools and Valve Seat Rings will act as your transportation health guard.

 K-O Valve Seat Insert Tools are made to service all makes of motor transportation. 2. You can depend on K-O Rings. They'll be in there for miles and miles!

 K-O Valve Seat Grinders are servicing essential transportation and doing their part to make 'em last.



K. O. LEE COMPANY, ABERDEEN, SOUTH DAKOTA

IF IT'S MADE BY LEE . . . IT'S A KNOCK - OUT

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residues but to the car owner, they're just sludge and gum. He knows that they cut down on his power and shorten the life of his engine. He knows because his car manufacturer is constantly reminding him of it. Hand in hand with this advice goes Petroleum Solvents advertising in twenty national magazines-advertising that tells him LOOSITE-SILOO is the speedy, safe, sure, economical treatment to re-

All you have to do is display the sign and mention LOOSITE-SILOO. Your trade has been pre-sold. They want this engine protection and guarantee of longer life. If you're not a LOOSITE-SILOO dealer, ask your jobber about them or write to us.

If you heat with oil-write for information on SILOO FUEL OIL TANK SOLVENT.

PETROLEUM SOLVENTS CORP., 331 Madison Avenue, New York 17, N.Y.





Ford to Build An Economy Car

The Ford Motor Co. has decided definitely to build an economy car selling for about 25 per cent under the regular Ford line after the war, Henry Ford II Executive Vice President announced recently at a meeting in St. Paul, Minn. Previously the company had announced that such a car might be offered if there was a demand for it, but Mr. Ford's statement indicates that the decision to go ahead has been made.

He emphasized that the car, which probably will go into production within a year after automobile production is resumed, will not be radical in style or design, but will be smaller than standard models. It will have a shorter wheelbase with a comfortable, roomy body, providing ample head room. Seats will be of conventional size, he added. The car will not be a makeshift, but will be complete in every detail, having all the accessories, exterior trim, and interior appointments found in the larger models, although these will be smaller in size. It will be full width tread. Mr. Ford did not discuss the engine, except to state that it would be adequate for the car. He did not give any mechanical details as to number of cylinders, horsepower, or design.

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The lower cost will be accomplished through economy in production and engineering, but not in quality, he added. When asked whether Ford intends to manufacture planes after the war, Mr. Ford stated that the company's business is making cars, trucks, and tractors and that it has no plans to build aircraft.

Concentrate Oil Made By Hood Refining

The Hood Refining Co., 222 N. Hamilton Ave., Greensburg, Pa., is now manufacturing a new lubricant under the trade name of "Gibraltar Oil Concentrate." When added to or blended with any good grade of oil in the correct proportion, it produces a super-lubricant, according to the manufacturer.

Gibraltar Oil Concentrate is intended for all types of internal-combustion engines such as steam and gas engines, turbines, air compressors, truck engines, vacuum pumps, aviation oils, etc. It thoroughly mixes with any type of lubricating oil, will not settle out or segregate, and cannot be extracted by any filter.

The manufacturer recommends that one part of Gibraltar Oil Concentrate be added to eight parts of regular lubricating oil. Further information will be furnished on request.

No wage is "too high" that is earned!

What of the wages of the future? This question is bound to come up in any discussion of postwar planning.

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OR AGE

On this, our attitude is clear. No wages are high that are earned. Fifty dollars a day *earned* is none too high. But a dollar a day *unearned* is much too high.

More Productive Methods

Wages are a part of the product. They are not the result of the employer's generosity, nor the employee's ability to bring pressure to bear.

American Industry has continuously developed methods whereby a man receives more pay for fewer hours but still increases production. And so it will continue to be.

But wages are only one of industry's problems.

A Better World Must Come

Millions of young men and women have been withdrawn from their homes and careers. Business is shorthanded. Many industries have been seriously disrupted. Public debt and the casualty lists mount higher every hour.

Victory, therefore, is the greatest concern of everybody. After Victory, all of us must strive to build a better world . . . a world in which such misfortune can never happen again.

Material things... radar and plastics and television and giant planes... will contribute much toward

building a better and stronger American people. But these alone are not enough.

Confidence is the first need . . . confidence that work brings reward. Such confidence cultivated in a people generates enterprise and effort.

Industry, being part of the people, responds to the same stimulus... and is ready to initiate and work and invest all for the treasure of life in America.

Youth Must Have Opportunity

The way must be kept clear for independence in business... and for young men to start new businesses. Vigorous competition and initiative have carried our country safely and far.

American business is not performing its complete function unless it makes available to every family traditional American standards of living. American business also must serve social order and social advance. There is little room for racial or religious prejudice or class distinction when a country is alive with energy and is working.

These are some of the thoughts we hold as we look toward the day when wages will again be earned by building the goods of peace.

Henry Ford ?

FORD MOTOR COMPANY



Another example of the creative engineering that marks the efficient operation and outstanding construction of the Bendix Drive is its Drive Spring.

Made from a special spring steel . . . thoroughly heat-treated before winding . . . pretested against distortion and breakage—these are a few of the outstanding features of the Drive Spring. During the cranking operation, the

Drive Spring is completely protected by being fully compressed. Thus is assured longer life and better drive service.

For quick identification and your protection, the Spring and other Starter Drive parts are packed in the well-known blue and white Bendix boxes.

Remember—the name Bendix is your assurance of durable construction and customer satisfaction.

BENDIX AND ECLIPSE ARE TRADE-MARKS OF BENDIX AVIATION CORPORATION

NATION-WIDE
100
DISTRIBUTORS AND MORE THAN 1200 BENDIX DRIVE AUTHORIZED SERVICE STATIONS

Bendix Drive

ECLIPSE MACHINE DIVISION

BENDIX AVIATION CORPORATION, ELMIRA, NEW YORK





AVAILABLE NOW on priority

BUELL MANUFACTURING CO.



Fiberglas Mats

The Owens - Corning Fiberglas Corp., Toledo 1, Ohio, has just published a 16-page booklet describing the use of Fiberglas battery retainer mats in storage batteries.

The booklet describes the method of installing the retainer mats in batteries and the function of the mats. It also describes the process by which fiberglas is manufactured and the various forms in which it is produced and its various uses.

Lubrication Manual

The Amalie Division of L. Sonneborn Sons, Inc., New York, has just published a 12-page illustrated booklet describing its complete line of lubricants for every important lubrication point from chassis to wheel bearing, steering gear, universal joints, water-pump, underdrive, shackles, springs, hypoid gears, and other vital parts.

The booklet is divided into three sections—Chassis, Transmission and Differential, and General. It contains a quick-finding index enabling the reader to choose the right lubricant for every purpose.

A copy of the new "Amalie Lubricants" booklet may be obtained by writing on your own stationery to the Amalie Division, L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.

Gasket Guide

The Victor Manufacturing & Gasket Co., 5750 W. Roosevelt Rd., Chicago, Ill., has just issued the 14th edition of the Victor Gasket Guide. This gasket reference catalog contains comprehensive data on all kinds of gaskets required for replacement in automobiles, trucks, tractors, buses and industrial and marine engines.

Among the convenient new features are full numerical listings of factory part numbers with Victor numbers, special indexing when there are numerous motor models, markings of alphabetical listings to show the contents of gasket sets, and an up-to-the minute popularity rating of gaskets and oil seals.

How the new WPB allocations affect anti-freeze brands



NO SYNTHETIC METHANOL has been allocated to anti-freeze producers for next winter. Total production is needed for munitions and other war uses. However, ethyl alcohol and "glycol" anti-freezes will be manufactured, although in slightly smaller quantities than last year.

THIS MEANS that there will be no regular "Zerone" (Type S)—but that Du Pont will again offer War Emergency "Zerone" (Type N) and "Zerex" (Type P).

anti-freeze to be made for civilian uses is less for next winter, the War Production Board believes that the new allocations plus carry-over stocks should meet the real needs of every section of the country. And we believe that this will be true—if the job

of distribution is done efficiently and equitably by manufacturers, wholesalers and dealers, as it was last season.

IF YOU WILL KEEP THESE FACTS in mind when making your requests for anti-freeze, you can help your "Zerone"-"Zerex" jobber administer his supply of anti-freeze in your best interest as well as his own.

Important

Du Pont offers you 2 brands

WAR EMERGENCY "ZERONE"* Type N (ethanol) at \$1.40 a gallon retail, OPA ceiling price. In 54-gallon and 5-gallon drums.

"ZEREX"* Type P (ethylene glycol) at \$2.65 a gallon retail, in one-gallon metal containers, packed six to the carton. *Trade Mark

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY



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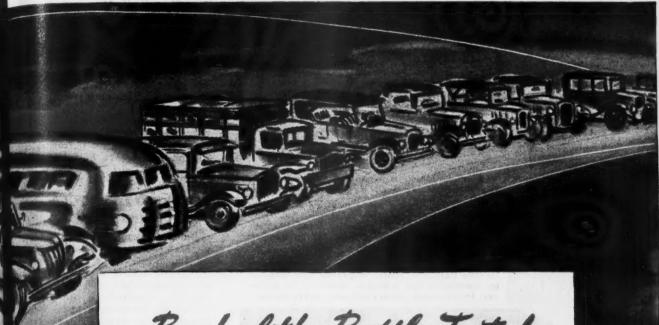
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AGE

Keep On Buying and Saving WAR BONDS For Peace and Security

the world's finest investment!





Back of the Battle-Tested AUSCO Post-War Hydraulics

are Ausco's 22 years in Building Millions of Jacks for Cars, Trucks, Busses!

• Into the building of the Ausco Hydraulics now serving with America's armed services have gone the best that Ausco's twenty-two years of building jacks by the millions could produce.

These military jacks are the forerunners of a complete new line of mechanical and hydraulic jacks for every automotive service requirement. They are a forecast of the great advancements you'll find in Ausco hand jacks, bumper jacks and floor jacks when relaxing military requirements make their production possible. AUTO SPECIALTIES MFG. CO., St. Joseph, Michigan; Windsor, Ont., Canada.

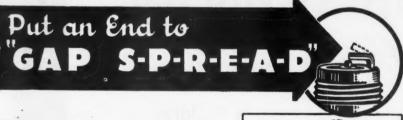


FOLLOWING IS A PARTIAL LIST OF WAR MATERIALS AUSCO IS HELPING TO PRODUCE.

Ordnance Ammunition Steel Castings
Trench Mortar Bombs
Complete

Tracks for Tanks and Combat Vehicles
Hudraulic and Mechanical Jacks.





REPLACE with Leonards and give your customers a spark plug that practically eliminates "gap spread" or widening between firing points.

Leonard special construction holds the original gap setting longer than any other plug. The gap can't change even if the ground wire moves (see large illustration).

Write for new "Duration" Catalog

LEONARD SPARK PLUG CO., INC. NEWARK, N. J.



TOP PICTURE: Dotted line shows how electrodes of conventional plugs become separated through heat expansion.

LOWER: Leonard side - spaced electrodes maintain their original spacing — even if ground wire moves in vertical direction.

LEONARD Cooled SPARK PLUGS

American Bantam Will Build Trailers

Francis H. Fenn, president and chairman of the board of American Bantam Car Co., has announced that the company "is well along in its postwar planning." As the Bantam company is now one of the leading producers of military trailers, the directors have approved plans of the management to continue in the cargo and haulage equipment field.

New Absorber Announced

Supplementing its well-known line of "Airplane-type" direct acting shock absorbers, the Monroe Auto Equipment Co., Monroe, Mich., has announced a heavy-duty truck model of "triple-action" type. This unit is quite comparable in design with the current shock absorber line but is larger in size and capacity and features triple-action characteristics owing to the introduction of a lockout valve which affords secondary compression.

Welding Bulletin

A 46-page, fully illustrated builtein describing in simple and understandable language how to assemble a welding or cutting outfit entitled—"Setting Up a Victor Welding or Cutting Unit," has been made available for vocational training schools and to beginners.

Anyone interested may secure a copy, free of charge or obligation, by requesting Form No. 1 from Victor Equipment Co., 844 Folsom St., San Francisco 7, Calif.

Produce New Service Clamp Broadside

Describing many applications with pictures and text, a new broadside on the Punch-Lok safety clamps used in the newest method of banding hose or splicing cable has been published by The B. F. Goodrich Co., Akron, Ohio. Copies can be obtained upon request. The clamps are available in two types, the preformed, complete rings which are shaped to slip over the ends of hose; nipples, connections, or other sections to be joined and the open-end, straight bands made to permit curving around hose, cable or other objects that need binding.

The broadside describes the safety and time-saving features of the clamps, now being distributed nationally by the Industrial Products Sales division of B. F. Goodrich.

V-Belt Catalog

A new handy conversion chart and price list for fractional horsepower V-belts has just been issued by The B. F. Goodrich Co. and is now available upon request. It gives the size and conversion data on standard "0", "A" and "B" section belts for refrigerators, washing machines, ironers, stokers, oil burners, pumps, wood working machines, compressors, grinders, blowers, and industrial machinery.

Exhaust Systems Bulletins

Maremont Automotive Products. Inc., S. Ashland Ave. at 16th St., Chicago, Ill., announced another step in its policy of educational literature designed for the benefit of automotive jobbers, retailers and consumers alike.

The Maremont Engineering Department has produced a series of bulletins on exhaust systems in the modern motor car. A partial list of subjects includes: "The Automotive Engine," "Back Pressure," "Why Do We Need Mufflers?" "Designing the Muffler for Silence," "The Effect of the Muffler on Motor Efficiency," The Dangers of Carbon Monoxide."

These are to be mailed monthly to jobbers, jobber salesmen and to dealers, and will comprise an effective textbook for the beginner, as well as a "refresher" for the seasoned exhaust system salesman.

ON

MAKES FRONT-WHEEL-DRIVES EASIER TO STEER BECAUSE:

11111

Constant Angular
Velocity...
Uniform Power
Flow...
Uniform Traction...
Less Tortional &
Lateral Vibration

Mew Process

New Constant-Velocity Universal

CONSTANT-VELOCITY UNIVERSAL

ONLY 4 SIMPLE PARTS

Easier to Assemble
No Jigs or fixtures required
No pre-loading or

Accommodates for

Accommodates for moderate end-float misalignment and wear Assuring constant velocity over wide steering angles and under heavy loads, the New Process TRACTA universal eliminates the traction losses, backlash and high-frequency vibration of ordinary Cardan joints. Light and compact, it practically nullifies centrifugal and gyroscopic forces, making steering firm, responsive and positive at high speeds and under heavy torques. There are no nuts or pins to assemble or shake loose. The four simple parts alip together handily, greatly reducing assembly time and cost.

TRACTA JOINTS are ideally suited to frontwheel drives, multiple-drives, independentlysprung wheels, half-tracks and caterpillars.

Write today for sizes, forgue capacities, operating and test data.



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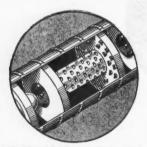
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NEW PROCESS GEAR CORPORATION

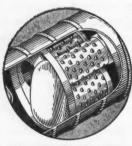
DIFFERENTIALS, AXLES, TRANSMISSIONS, AVIATION GEARS . . . SYRACUSE 1, N. Y.



only Pratt Mufflers have exclusive SCOOP ACTION plus patented Spiral Construction



Arrangement of patented, selfcleaning, "can't clog", SCOOP ACTION tubes in Pratt Straight Flow Mufflers.



Cross section of Pratt Triple Flow Muffler. Self-cleaning, non-clogging, SCOOP ACTION tubes insure peak-silencing efficiency. Pratt scoops the muffler replacement field with self-cleaning SCOOP ACTION and SPIRAL-BUILT construction. These two exclusive, patented Pratt-engineered features are two big reasons why Pratt Spiral Mufflers are DIFFERENT—BETTER—FASTER SELLING.

Most mufflers fail first in the shell... but not if they're Pratt Spiral Built. Pratt shells, of cold rolled steel, are reinforced by continuous, spiral 4-ply, interlocked metal ribs. This patented construction produces mufflers of enormous strength and rigidity, and distinctive appearance.

Self-cleaning SCOOP ACTION is an exclusive Pratt feature... Scoophooded louvers scoop up exhaust gasses and deflect them into silencing chambers... Because the scoops are self-cleaning they can't become clogged with carbon deposits, and power-robbing, fuel-draining back pressure is reduced to a minimum. The result is Top Efficiency.

PRATT INDUSTRIES, Inc., FRANKFORT, N.Y.

JOIN THE PROFIT PARADE WITH PRATT SPIRAL MUFFLERS AND WATCH YOUR MUFFLER SALES PYRAMID.

PRATTSpiral MUFFLER!



THE convenient method of restoring performance and mileage to carbureters after many miles of efficient service







The essential parts for a thorough job-

CARTER CARBURETOR CORPORATION, St. Louis 7, Missouri

Division of American Car and Foundry Company

For measuring battery charge electrically



HICKOR Chargicator

Does Away With Dripping Acid Hydrometers

Another Typical Hickok Specialized Instrument Development

The Chargicator uses a patented design which permits supersensitive measurements, remotely indicating electrically equivalent gravity of a lead-acid storage battery. The batteries need not be disturbed, and readings need not be made at the battery.

The Chargicator is an electrical hydrometer which places no load on battery and may be left permanently connected. Weak or defective cells are quickly and accurately spotted long before actual failure occurs. Shows what charging rates to use and warns instantly of destructive overcharging. When battery is under load, pointer shifts to left as load increases, showing ability of battery to take the load.

Successfully used where batteries are inaccessible, on fire fighting apparatus, signalling systems, telegraph stations, telephone installations, battery chargers, "Quick Chargers," etc., where a continuous or quick measurement of battery charge is desirable. Write for further details.

Proceeding Calibratics of Lasting Accounts

THE HICKOK ELECTRICAL INSTRUMENT COMPANY . 10564 DUPONT AVENUE CLEVELAND 8, OHIO



























Better, <u>Faster</u> Cleaning with the <u>Right</u> Magnus Cleaner



All the latest developments in automotive cleaning methods and materials are included in the new edition of this famous cleaning manual. Write for your copy today.

You can use ordinary cleaners and methods for your cleaning operations, if you don't mind high labor costs, excessive bills for cleaners and incomplete cleaning results.

But when you use the Magnus cleaner developed specifically for a particular cleaning job or jobs, you'll not only get faster cleaning with a whole lot less cleaner, but you'll get a great improvement in the cleaning job itself, that will be reflected in customer good-will. If you'll pick a cleaning job on which you'd like to get better, more economical results and ask us to send you enough for a thorough trial, we will be glad to do so on the terms of the Magnus 30-Day Trial Offer outlined on Page 45 of the Magnus Automotive Cleaning Handbook.

Get Your Copy of the New Edition.



MAGNUS CHEMICAL CO. 174 SOUTH AVENUE, GARWOOD, N. J.

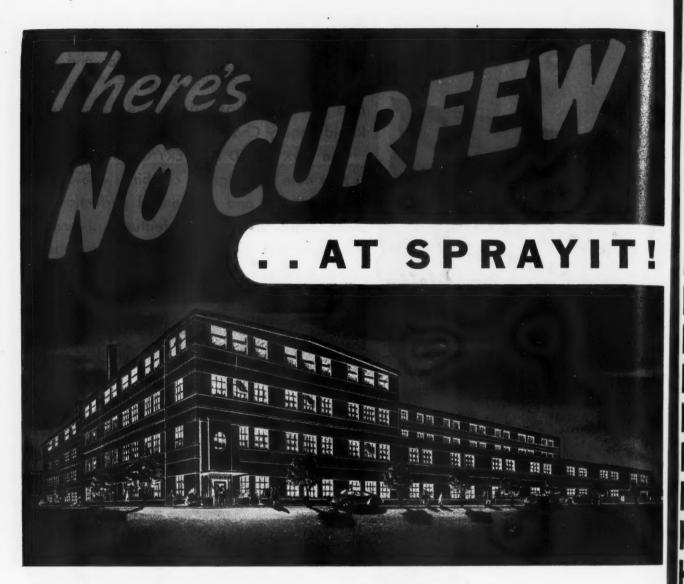
Automotive Cleaners



MAY, 1945

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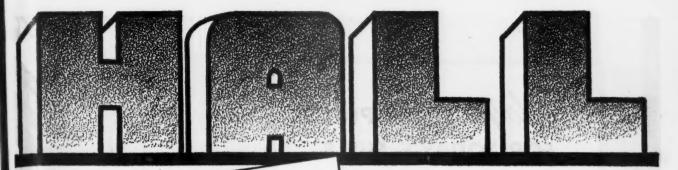
FERE at Electric Sprayit Company, little thought has ever been given the word "Curfew." Probably because it just never seemed to fit into the SPRAYIT course of action. Since this company was first organized, much thought, tireless effort and endless hours have been devoted to developing products of unusual application that have earned a permanent place in everyday commerce. Additional products will be added to our line when future operations permit.

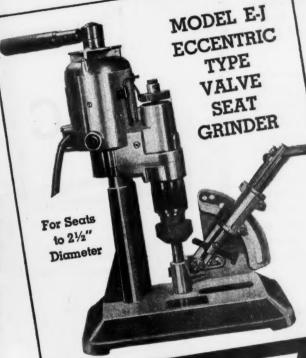
Today at SPRAYIT, action is just as great, machinery hums as continually, and lights are just as bright as when peak war production was first reached! There'll be no Curfew in present schedules until proper military officials say "Your job is completely finished." After that, it will be our job to build the finest products and render the best service in SPRAYIT history. In the duties of war and the business of peace, "There's no Curfew at SPRAYIT!"



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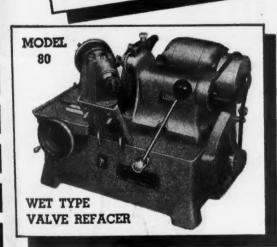
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With this Grinder any service shop can exactly duplicate factory precision, finish, speed and eonomy in the servicing of valve seats. That's because it's identical in principle and performance with large multiple spindle HALL ECCENTRIC Grinders used in factory production.

Costs less to own and operate because its ECCENTRIC or point contact grinding principle multiplies the life of grinding wheels and pilots; also permits narrowing from inside the seat without wedging, binding and wheel breakage. Grinds any metal.



Grinds any valve to 4" head diameter with finest precision and finish. Wet feature is built in and prevents "stem growth" and "surface burning." Workhead is doweled for various angles. Dovetail type ways accurately machined. Micrometer feed, spring loaded gibs, special type collets, variety of grinding attachments and many other features.



Counterbores block for standard or oversize inserts. Spins metal around seat to

make a permanent installation without screws, heating, cooling or possibility of fracturing metal. Handles recessed type heads. Expansion cutters easily set with ordinary "mikes." Ball joint permits servicing seats to 30° from center. Also

made in hand operated type.

CONSULT YOUR HALL JOBBER . . . or write the factory today for complete information on this and other HALL equipment.

THE HALL MANUFACTURING COMPANY, TOLEDO 7, OHIO

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Today's SPARK PLUGS FOR TODAY'S FUELS

By choosing the right AC's for the fuels now available to your customers, you give them the utmost in spark plug reliability, under all operating conditions.

For this reason, AC's popular acceptance as a replacement spark plug will be of real assistance to you in these days of lower-octane fuels. AC's wider Heat Range insures maximum performance and longer life, and makes satisfied customers.

AC Spark Plugs are factory equipment on two of every four cars and trucks built from 1932 until civilian production ended, which is still another reason why you should be able to develop a highly profitable replacement market in AC's-today's spark plugs for today's fuels.

Field Service Department, AC Spark Plug Division, G. M. Corp. 910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send me at once, no charge, the AC Shop

- ☐ HOW TO SERVICE SPARK PLUGS
- ☐ How to Service Spark Plug Cleaner
- ☐ How to Service Oil Filters
- ☐ How to Service Fuel Pumps
- ☐ How to Service Air Cleaners ☐ How to Service Speedometers
- ☐ How to Service Ammeters and other Instruments

NAME

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STREET ADDRESS_

SPEED FINAL VICTORY - BUY WAR

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Eight hours of productive work. That's what time cards indicate. It's the kind of service good employees try to give. But they know, even if the boss does not, that time clocks lie.

A time clock, you see, doesn't record wasted time.

And in many a business today, employees are forced to waste time because they are using inefficient forms—forms that fail in their primary function of getting the right information to the right people in the fastest possible way. It's easy to overlook that function because forms are so often regarded as "mere routine."



Uarco has devoted more than 50 years of thought and effort to the job of making forms work faster. We've devised ingenious ways of combining paper and carbons to save from 17% to 78% of form-handling time. We've invented entirely new forms to cut down the time-lag in every business operation where forms are used.

Perhaps the Uarco Representative can suggest forms that will help your employees to give you more of their *productive* time. A consultation costs nothing—and may save you hundreds of dollars.

UNITED AUTOGRAPHIC REGISTER COMPANY Chicago, Cleveland, Oakland • Offices in All Principal Cities

for instance . . .

We call this form the Uarco E-Z-Out. Up to 6 copies with pencil . . . up to 17 copies with typewriter. Then snap! Out pop the forms ready for instant distribution . . . singly or all at once. Here's a real time-saver when records must be written at odd moments, or when later entries are necessary. But remember, no matter what type of records you keep, Uarco has a form which may save you time and money!





KING QUALITY

"Building for the future on a 25 year record" ST. LOUIS 10, MO., U.S.A.

PISTON RINGS • PISTONS • PINS • VALVES BOLTS • BUSHINGS • SILENT-U SHACKLES



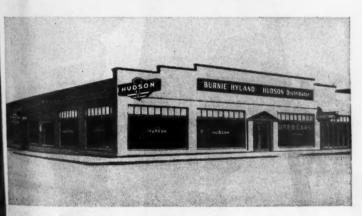
BEARINGS . WATER PUMP PARTS

"We'll be ready, too!"

. SAY HUDSON DISTRIBUTORS AND DEALERS



Ralph Knight, Inc., Distributor, Kansas City, Mo.



"Burnie" Hyland, Distributor, Spokane, Wash.

RIGHT NOW, Hudson distributors and dealers are putting into operation an expanded program of parts distribution—to assure a continuance of the kind of service that has kept Hudson cars in tip-top condition through three years of war.

That is their Number One job. But at the same time, they are well along with plans to enlarge and modernize their plants, equipment and sales facilities for the competitive selling battle ahead.

Hudson distributors and dealers will be ready, when the time comes, to sell a substantially larger percentage of the industry's total of new cars. And in every part of the country, this opportunity is attracting business men of outstanding ability and experience to the Hudson franchise.

HUDSON

HUDSON MOTOR CAR COMPANY DETROIT 14, MICHIGAN

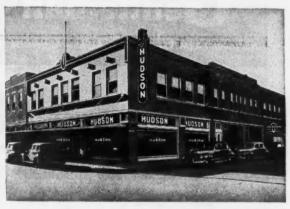
35 Years of Precision Manufacture



When new cars can be built again, the Hudson Triangle, long a symbol of craftsmanship and quality, will identify outstanding Hudsons, product of the combined war and peacetime experience of this veteran organization.



Dick Du Bois, Distributor, Seattle, Wash.



Jefferson Motor Car Co., Distributors, Beaumont, Texas

UR PLANTS ARE DEDICATED TO WAR PRODUCTION — OUR DEALERS TO MAINTAINING WAR TRANSPORTATION

IAY, 1945

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OTOR A

When writing to advertisers please mention Motor Age

This Colossus makes PAUL BUNYAN A PIKER

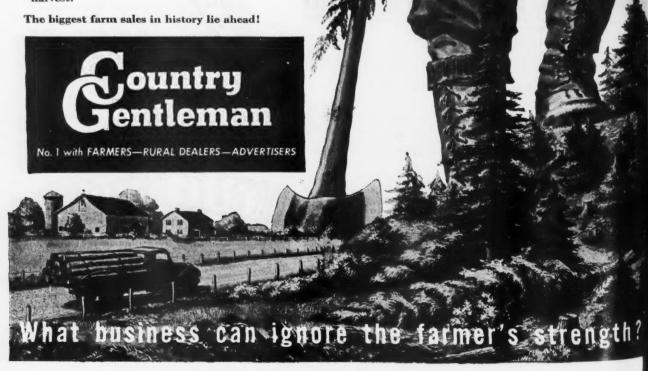
REMEMBER the tall tale of Paul Bunyan? Legend is that, single-handed, he cut all the timber from Maine to Minnesota.

But listen to a greater tale—and this one no legend. Hear the true story of a Colossus who last year cut 6,000,000 cords of pulpwood . . . the Colossus of the Cross Roads . . . the American farmer.

In 1944, primarily as a sideline, this giant logged from his own woodlands more than 35% of all the American pulpwood consumed by our paper-making industry. Thus the farmer not only improved his timber holdings but helped save our war-caused paper shortage from becoming a national catastrophe. And, incidentally, his logging added another 80 million dollars to his steadily growing bankroll!

The farmer last year surprised the nation with record harvests in practically all crops. This, in spite of an acute shortage of farm help and aging machinery. The farmers' total income reached 27.9 billions, his savings 13.5 billions . . . making him the richest farmer in history, and a giant post-war prospect that all Industry is eyeing eagerly.

And as Industry looks toward the farmer, it naturally looks toward Country Gentleman. You can be sure that as soon as the paper shortage eases (and farmers themselves are helping to ease it) Country Gentleman will welcome new advertisers to the post-war "harvest."



THE LAMP THAT DOES NOT GROW DIM!

KEEP BUYING
WAR BONDS...
KEEP THE WAR
BONDS YOU BUY

G-E MAZDA ALL-GLASS SEALED BEAM LAMPS

GENERAL (%) ELECTRIC

red and laboratory tests show that the average G-E Mazda Sealed Beam Headlamp maintains 99% of its original light output right up to the end of lamp life.

MY, 1945

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SHOULD MANAGEMENT BE UNIONIZED?

A Statement by General Motors

THE National Labor Relations Board has ordered a bargaining election among the foremen and other supervisory groups of a Detroit automobile company.

This company is not a part of General Motors, but we are concerned with the principles involved.

This confusing action by the Board means that it is sanctioning and promoting the unionization of management personnel, in spite of the fact that the National Labor Relations Act includes as an employer "... any person acting in the interests of an employer directly or indirectly."

We are sure that Congress did not intend to approve unionization of management when it passed the Act. The results if applied throughout industry would be bad for the management groups involved, bad for industry, bad for labor, bad for America.

Bad for Foremen

We think it would be bad for foremen if American industry should be compelled to make a change in its proven type of organization, which would unavoidably reduce the foreman's status, diminish his responsibility, authority and influence, decrease his opportunities for personal advancement.

In General Motors, foremen have always had important responsibilities and authority.

We have always guarded the status of our foremen, and have provided special training to improve their abilities, increase their efficiency and enhance their opportunities for promotion to even more important management positions. The great majority of General Motors' principal executives at one time were foremen.

We are convinced that it would be impossible for a foreman to follow both management and union leaderships at the same time, and under those conditions to carry on all his duties as they now exist. All elements of management must have a common objective.

It would obviously be impossible, for instance, for him as a fellow unionist with those under him, to perform his functions which relate to their working conditions, wages, promotions and assignments on the unbiased basis which is essential to good management.

Bad for Industry

From our experience both before and during the war, we are certain that

THE POSITION OF FOREMEN IN GENERAL MOTORS

In General Motors, foremen are the MANAGERS of their departments. They participate in establishing management policies in both production and personnel matters. They have full authority to approve or disapprove the hiring, to supervise the work, and to make work assignments of the employes under their supervision. They initiate wage increases, transfers and promotions. They are directly responsible for the efficiency and safety of their group. They have full authority when necessary to take immediate, appropriate disciplinary action for violation of shop rules, and other improper conduct of their employes. They are the first point of management contact and make the first management decision on all matters relating to the employes under their direction.

the accepted American method of spreading managerial authority and responsibility among foremen—so that management is in close, direct contact with comparatively small groups of workmen—is the best and only sound method of handling day-to-day relations with the thousands of employes engaged in modern mass production.

Anything which would require a change in this set-up would interfere with employer-employe relations and with production.

For example, there have been many strikes in war production plants, particularly in Michigan. Charges have been made that workmen have been loafing in plants engaged in war production and that they are being paid high wages for not working. We are conscious that the public feels that there must be something wrong. The attempt to tear down the position and authority of foremen and to unionize members of management is importantly contributing to this condition.

Bad for Labor

As a matter of fact, the close-contact method is about the only way that management and labor can work harmoniously together in large organizations. Much is said these days about cooperation. It would be a serious handicap to any hopes for teamwork and the pursuit of common interests, if anything were done to remove this facility for knowing and understanding each other.

It is our firm, sincere belief that loss of this close contact would make harmonious relations between management and labor almost impossible and would interfere with *practical* collective bargain.

Bad for America

The removal of foremen from their present position as a vital, integral part of management would require reorganization of factory management on a basis far more complicated and decidedly less effective. Necessary factory discipline would suffer, worker efficiency would be impaired.

We believe the effect on you-on the public as a whole-would be very real

It would interfere with the war effort.

It would make war materials cost

It would slow up postwar reconversion to civilian production.

It would delay adequate postwar output of cars, refrigerators, ranges furniture—all the things people need so much and have waited for so long.

Finally—and, in the long run, perhaps most important of all—it would so increase production costs as to boost prices and the cost of living, and make the problem of reasonably full employment much more difficult.

Action Called For

When people have as deep a conviction about anything as we have about unionizing management, they ought to do something about it.

If the meaning of the National Labor Relations Act can be so confused at to promote unionization of management—and thus impair the effectiveness of the American production system of which we are all so proudthen the meaning ought to be cleared up.

General Motors believes—and hope others will feel the same—that it is a patriotic duty, a duty to the formen, to industry, to labor, and to the public as a whole—to oppose the unionization of management by every proper and lawful means.

That is our intention.

GENERAL MOTORS



HARSEN
AUTOMOTIVE Airline Equipment

 Hansen automotive equipment such as air hose couplings and oilers have been widely used by service stations, garages, car dealers, and fleet owners for many years.

Hansen air hose couplings are extremely easy to connect and disconnect, save a great deal of time, effort and air. They will handle pressures from 2 ounces to well over 10,000 pounds without leaking. No twisting or turning to connect or disconnect merely push plug into socket, it

is connected, locked and air is automatically turned on; to disconnect, slide back sleeve, plug is released, air is automatically turned off. Full swivel action prevents kinking of hose.

Hansen jet oiler is manually operated, projecting a solid jet of light or penetrating oil when plunger is depressed. All pump parts are enclosed in handle casting, protecting them from dirt, dust and breakage. Oil container has a one quart capacity.



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OR AGE



It's a General Motors Product

Engineered to Original Equipment Specifications,
Inlite gives positive pedal pressure that's right
for both men and women drivers. Every Inlite
segment has the same uniformity of
structure—the same long wear factor—
for straight line stops over a longer life.

And Inlite is a double time-saver. It goes on faster—and comes into normal operation at once, thereby eliminating time-wasting call-

backs for readjustments.

INLAND MANUFACTURING DIVISION

General Motors Corporation Dayton, Ohio

KEEP ON BUYING WAR BOND



WHAT INLAND IS MAKING FOR VICTORY

Inland Products for Victory include Carbines, Tank Tracks, Gun Sights, Helmet Liners, Extinguisher Horns, and Rubber, Synthetic Rubber and Metal Parts for Tanks, Aircraft, Submarine Chasers, Torpedo Boats, Artillery Lighters and Landing Craft.

MAY.

For Meritorious Service In Action

ON THE HOME FRONT



(5)

ON THE WAR FRONT



ELECTRICAL TOOLS

STAND BY! . . . is the battle cry of these electrical tools which have been the STANDBY of industry since 1898. They've been standing up under every test in the most rigorous demands for production which are exceeding the liveliest imagination . . . and after the war UNITED STATES ELECTRICAL TOOLS will continue to deliver the service which you've come to expect of them.

VALVE REFINISHING MACHINES MODEL VR7



For Wet or Dry Grinding

HEAVY duty super-service valve refinishing machine. When extreme accuracy is required wet grinding is desirable as it increases the speed of grinding because it decreases grinding heat and prevents burning, thus permitting heavier cuts. VR7 produces a smooth mirror-like surface on the valve face, comparable to the finest tool room cutting. Grinds valves from 15 to 90 degrees without the use of special shaped grinding wheels.

Equipped with two motors, one for driving the grinding wheel spindle and the other for driving the chuck spindle; the U. S. Super Chucking System; attachment for truing ends of valves; diamond wheel dresser; cutter grinding indexing support; adjustable lamp and electrical connections; one 5" grinding wheel for valves; one 4" recessed grinding wheel for valve ends and wrenches.



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AGE



CHEVROLET DEALERS LEAD IN SERVICE

just as they

LEAD IN SALES

All signs indicate that Chevrolet dealers are servicing more cars and trucks than is any other dealer organization

were first
in national sales
total in ten out
of the last eleven
peacetime years

Chevrolet dealers

Chevrolet Dealers Everywhere Are First

in

"Saving the Wheels that Serve America"

* BUY MORE WAR BONDS-HELP SPEED THE VICTORY *

CHEVROLET MOTOR DIVISION, General Motors Corporation, DETROIT 2, MICHIGAN

When you have the

CHEVROLET

franchise you have friends

120

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MOTOR AGE



is the AC Fuel Pump, heart of the fuel system. That's because it's first quality in design, material, and manufacture, - built to meet the engine maker's own requirements.

Serve your customers best, and protect your own reputation, by replacing worn pumps with new or factory-rebuilt ACs, and making repairs with authentic AC Parts Kits or Diaphragm Kits.

QUALITY FEATURES

- Careful control of pressure and flow assuring correct fuel supply.
- Accurate hardening, precision machining of parts essential to long life.
- Accurate control of spring tensions and temper.
- High, and controlled, pin hardness.
- 4-layer, patented impregnation diaphragms of special airplane cloth.
- farefully finished rocker arm pads, located to center on cam.
- Split-hair rocker arm clearance and control of pad hardness.
- Uniform pull rod hardness at pin holes.

BUY WAR BONDS - BRING VICTORY GUICKS

SEND FOR AN AC PUMP SHOP MANUAL

- NAME

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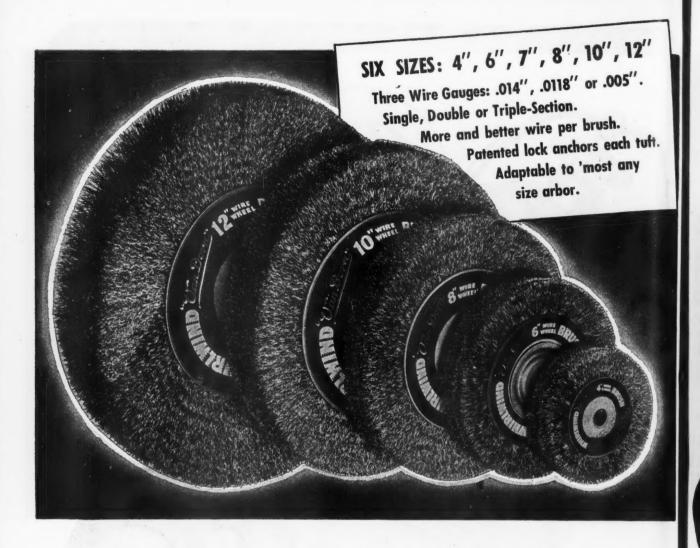
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Yes, the Best Wire Brushes are Van Dorn Whirlwinds!

Industry's toughest jobs have proved it! Van Dorn Whirlwind Brushes are better, tougher, stand up longer on all high-speed operations. And remember this: Made by Van Dorn on special Van Dorn machines, Whirlwind Brushes have each tuft of wire locked in a ring of steel... separately... securely... to stay!

What's more, you can use these Whirlwind Brushes, not only with powerful Van Dorn

Bench Grinders, Portable Grinders and Sanders, but on practically all types of grinding, buffing, polishing and cleaning machines. Next time you need wire wheel brushes, order Van Dorn Whirlwinds! There's a Van Dorn Distributor near you as a ready source of information and supply on the complete Van Dorn line. The Van Dorn Electric Tool Company, 727 Joppa Road, Towson 4, Maryland.







PORTABLE GRINDER

PORTABLE ELECTRIC TOOLS



But with dozens of things to service on his car, how can he keep track? He counts on me to remind him.

Like lots of my customers he knows his car's on its last legs and he's taking no chances. I've taught him

Mr. B...sure watches that CHEK-TAB!



That's why I put a CHEK-TAB on every car I service. Sticks right in the door-jamb. There are CHEK-TABS to cover every service—spark plugs, filter changes, tire switching, etc., as well as lubrication and oil change. Smart suppliers furnish them!



So here comes Mr. B-right on the dot! His CHEK-TAB tells him he needs service. And it also reminds him that I'm the business-like guy who put it there!



FREE - Want a whole set of hot merchandising ideas - dozens of ways to use CHEK-TABS you probably haven't thought of This 20-page book is full of them. Swell for service station operators, car dealers and their suppliers. Get your copy now. Write Mystik Adhesive Products, 2640 N. Kildare, Chicago 39.

HEK-TABS

Alf-Stik Cloth and Paper Tapes, Protective and Masking Materials, Waterproof Packaging Papers, Advertising Signs and Displays, Self-Stik Stencils

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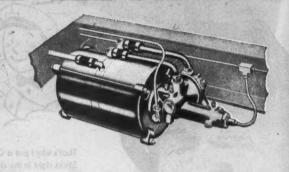
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HYDRAULIC-VACUUM POWER BRAKING BY



BENDIX



A MATCHLESS RECORD OF PROOF—BY PERFORMANCE

Hydrovac is truly the best proved product ever offered to the automotive trade. Its leadership in powerbraking efficiency, advanced design, trouble-free operation and ease of installation are proved by an unrivaled record of sustained performance.

In the armed service and under every

possible condition of weather and road, Hydrovac units have delivered *billions* of miles of satisfactory service from the tropics to the arctic.

Hydrovac was deliberately designed to meet the tough tests of military service. That's why Hydrovac is Simple—a single compact unit... Easy to Install—only three tubular connec-

tions... Trouble-Free—moving parts sealed against dust, dirt and water—and at all times Hydrovac delivers braking power at a pedal touch assuring positive, dependable stopping.

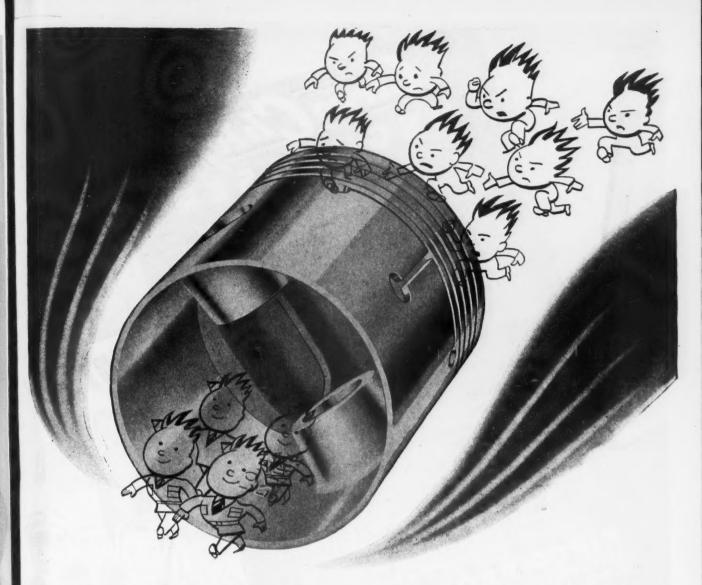
If you are interested in the best possible power brake, investigate Hydrovac. See your B-K dealer or write the factory direct.

RELIDENT SUIN HYDROLLER ARE TRADE, MARKE OR REMOVE SUISTING CORPORATE

Hydrovac AR TRADE

POWER BRAKING BY Bendix

BENDIX PRODUCTS DIVISION OF BENDIX AVIATION CORPORATION - SOUTH BEND 20, INDIANA



Aluminum Pistons discipline heat



LO-EX Pistons—Product of Alcoa Aluminum—provide maximum heat flow, thereby reducing their general temperature level. Proper cooling helps avoid piston ring sticking. Closer skirt clearances are possible—all desirable conditions, tending to insure long, trouble-free service. Aluminum Company of America, 2133 Gulf Building, Pittsburgh 19, Pennsylvania.

Ask for LO-EX* PISTONS Product of ALCOA Aluminum

*Registered trademark

ALCOA ALUMINUM



MAY, 1945

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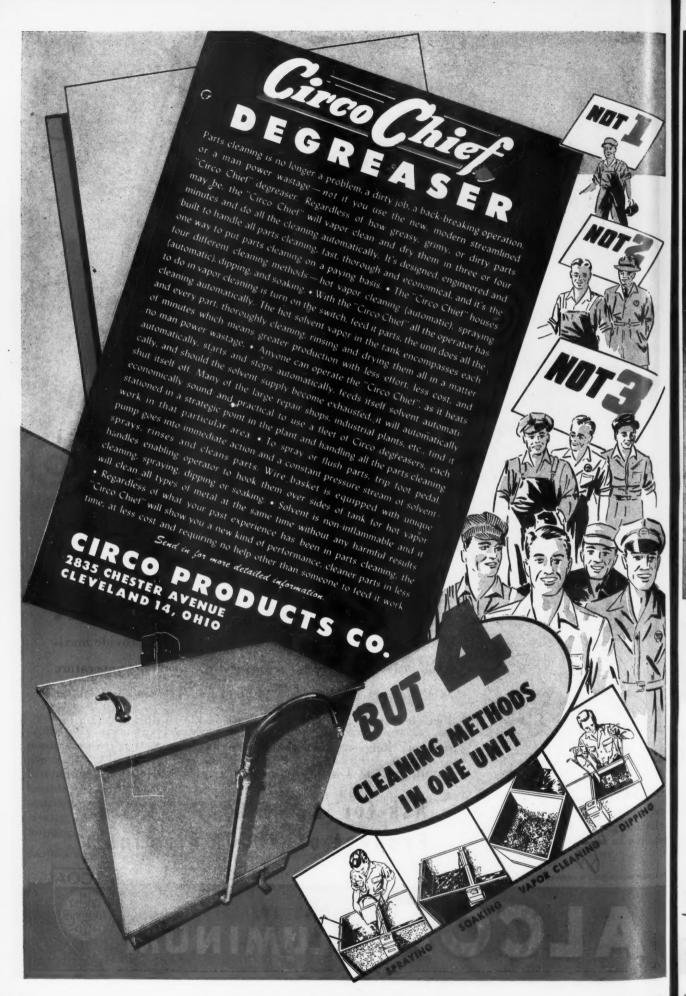
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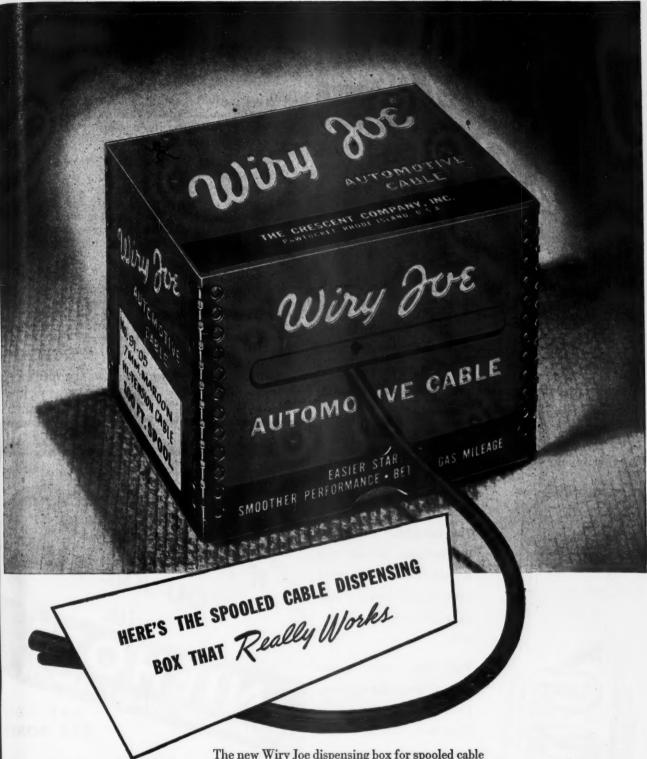
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R AGE

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The new Wiry Joe dispensing box for spooled cable is unique—a distinctive package for a distinctive cable!

IT'S ATTRACTIVE! • IT'S SIMPLE AND EFFICIENT! • IT'S STURDY AND DURABLE!

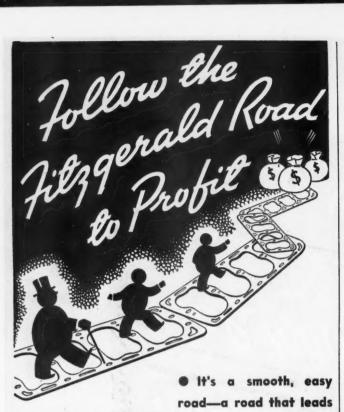
Just two simple steps, illustrated on the bottom of the package, and it's ready for use! It keeps the wire clean. Prevents deterioration . . . tangling . . . waste.

Ask your jobber about Wiry Joe's new spooled cable dispensing box. And look for the announcement of other Wiry Joe innovations soon!

CHECK THE WIRE ON EVERY JOB!



R AGE



direct to better gasket jobs, more satisfied customers, more profitable business.

It will pay you to install Fitzgerald Gaskets—extra tough, extra shock-proof—best for today's

passenger cars and commercial vehicles.

The complete Fitzgerald line includes gaskets and grease retainers to meet your every need. Ask your jobber for full details.

The Fitzgerald Manufacturing Company,
Torrington, Conn. —
Branches, Chicago and
Los Angeles — Canadian
FITZGERALD, Limited,
Toronto.



THE COMPLETE LINE THAT COMPLETELY SATISFIES

How to Remedy RADIATOR



When radiator cores become clogged so that circulation is impeded or stopped, thorough effective cleaning is necessary to put this hard-to-replace unit back on the job.

Oakite materials specially designed for this task completely remove rust, scale and similar deposits, restore water flow efficiency of radiators...leave units ready for quick, accurate inspection and any needed repairs. Recommended Oakite materials, used as directed, do not harm sound basis metals of radiator cores.

However, you can avoid costly out-of-service time by regular cleaning of radiators and water jackets. Specialized Oakite materials not only help to maintain normal operating efficiency of cooling systems, but prevent clogged cores, blocked water passages that usually result in expensive repair jobs. FREE booklet giving full details gladly sent on request

OAKITE PRODUCTS, INC., 24C Thames Street, NEW YORK 6, N. Y
Technical Service Representatives in All Principal Cities of the United
States and Canada





NIEHOFF Approved Quality Products are correct in design, reliable in performance and are engineered for long dependable service. A complete line of Ignition Parts—Coils, Condensers, Caps, Rotors, Starter and Generator Brushes, Switches and Voltage Regulators, also Magneto Parts are available through a National Network of NIEHOFF Jobbers.



C. E. NIEHOFF & CO. 4925 LAWRENCE AVE.
CHICAGO 30, ILL.
BRANCH: 1342 S. Flower St., Los Angeles 15, Celif.

BONNEY"SLIM"
BOX renches

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FOR AGE

• Extra thin - walled Bonney box wrenches are just the tools for tight spots. Drop - forged for strength-custom-hardened for long wear-custom-hardened for exact size of pull - broached for exact size of opening. Like all Bonney tools, opening. Like all Bonney tools, they're the first choice of mechanics everywhere. Ask your distributor or jobber about Bonney tools.



BONNEY FORGE & TOOL WORKS . 716 N. MEADOW ST. . ALLENTOWN, PA.

In Canada: Gray-Bonney Tool Company, Ltd., St. Clarens & Royce Aves., Toronto

MAY, 1945

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No longer is it necessary for the auto service trade use kerosene, gasoline or other inflammable liquids to remove accumulations of oil and grease from floors, steps or service station pits.



absorbs oils, greases, soluble oil and water solutions from floors, steps and pits where there is constant danger of fire and accidents caused by slipping on oil-and-water "slicks".

ECONOMICAL • FIREPROOF • LABOR SAVING

The systematic use of OIL-DRI-(All-Purpose) is the best and easiest way to prevent hazardous accumulations of oil and grease around equipment, on shop and garage floors and in service driveways. It keeps floors dry and skidproof. It restores unsightly oil-stained floors to their original appearance.



Attractively designed, 10 lb. bags, supplied with special OIL-DRI Scoops, are available for repacking. Write for full details of this -profitable item.



Recommended by insurance companies. Helps reduce insurance penalties.

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5036 N. Ravenswood Ave. CHICAGO 40, ILLINOIS

You can get

PERMITE VALVES

and other Permite Replacement Parts

FROM A NEARBY PERMITE JOBBER



HEN you need Permite Valves or other Replacement Parts, you want to get them as soon as possible. Your local Permite Jobber will probably have them in stock, but if temporarily out, he can get them quickly from his nearby Permite Warehouse Stock.

Typical of Permite Quality is the Permite Composite Valve. Upper and lower stems, each made of the right steel, are fused at the mid-stem point – out of the flame path. It is the valve that retains great strength at elevated temperatures and resists corrosion.

Permite Composite Valves are STRONG at ALL points. They insure long, carefree service and will help you hold satisfied customers.

All Permite Replacement Parts are made to the same precision standards as the original parts. They fit accurately, are easier and less costly to install. And the Permite Warehouse Distributor organization makes a complete stock available to you at all times through your Jobber. If you do not know the name of your nearest Permite Jobber, please write us.

PERMITE LINE

ALUMINUM ALLOY
PISTONS
SEMI-STEEL PISTONS
PISTON PINS
VALVES
VALVE GUIDES
VALVE STEM KEYS
VALVE SPRINGS
BOLTS
BOLTS
BOLTS
BOLT SETS
TIE-ROD ENDS
BUSHINGS
WATER PUMPS
WATER PUMPS
WATER PUMP PARTS
MUFFLERS AND CLAMPS

ALUMINUM INDUSTRIES, Inc. - CINCINNATI 25, OHIO

PERMITE PARTS

\$55 Warehouse Stocks support the coast-to-coast network of Permite Jobbers.

There's a Permite Jobber Near You!



R AGE

TAIL PIPES
CYLINDER SLEEVES
WET SLEEVE ASSEMBLIES



This AC method is as simple as it is effective. You just wipe the dipstick on the pad and show the dirty pad to the customer. Then you explain how dirty oil clogs piston ring slots, makes valves stick, wastes oil, gas and power, wears out engine parts.

Why not use the AC Test Pad method this spring and summer? The Pads are free—and their use will boost your Filter sales. And be sure that you have an adequate stock of AC Oil Filters and Elements on hand.

SEND FOR AC SHOP MANUALS

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Gentlemen: Please send at once, no ch	arge, the AC Shop Manuals checked
How to Service Spark Plugs How to Service Spark Plug Cleaner HOW TO SERVICE OIL FILTERS How to Service Amme	How to Service Fuel Pumps How to Service Air Cleaners How to Service Speedometers eters and other Instruments
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FILTERS

SPEED FINAL VICTORY-BUY WAR BONDS

he LEADER must LEAD REVERSE Raybestos leads in supplying friction materials for the widest automotive vehicles and every type of service. is obtained from these products estos leadership. fortan, Inc., BRIDEGEPORT, CONN. by the int ciation of Police AMERICA'S BIGGEST SELLING BRAKE LINING BUY AN EXTRA BOND Brake Linings, Clutch Facings, Fan Belts, Hose — For Cars, Trucks, Buses, Tractors — On the War and Civilian Fronts

MY, 1945

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NOW'S THE TIME— HERE'S THE PRODUCT

Millions of car owners need No. 7 Polish now! It's the best selling season, and No. 7 Products are being advertised prominently in LIFE, COLLIER'S, SATURDAY EVENING POST, COUNTRY GENTLEMAN and POPULAR SCIENCE. That's why you should push their sales—cash in on the big demand and the big advertising campaign now running. Urge your dealers to display and push this popular line!

NO. 7 POLISH—the choice of countless car owners since 1925.

SPEEDY WAX—Cleans and polishes at the same time.

DUCO CLEANER—For use before applying wax.

DUCO-WAX—For a brilliant, long-lasting lustre.



The DU PONT NOT LINE

YOU'LL LIKE THESE TWO LITTLE SQUIRTS



TRICO AUTOMATIC WINDSHIELD WASHER

WATCH FOR THE TRICO LIFT-O-MATIC, THE VANISHING WINDOW



They'll wash your windshield WHILE YOU DRIVE

Thousands of motor car owners already have sung the praises of the vacuum-operated Trico Automatic Windshield Washer.

The simple touch of a button automatically squirts water for six seconds on the windshield while you drive so that the wiper blades can easily clean off blinding dust, road spray, slush and grime.

Ready now for the cars of tomorrow is an improved Trico Washer with new automatic jet control. It will fit every new and old car and can quickly be installed by any service station.

TRICO PRODUCTS CORPORATION

Manufacturers of vacuum-operated products, including automatic wipers used as standard equipment on millions of cars for 25 years — and of precision gauges for 3800 war industries.

MAY, 1945

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In brake lining it pays to be right the first time! Thermoid Precision Processed Brake Shoes make every reline job right the first time! They give positive, equalized brake action from the very first push on the pedal. No tinkering adjustments necessary. No customer call-backs to worry about.

Thermoid Precision Processing assures beforehand absolutely accurate fit of lining to drum. Thermoid Precision Process Brake Service saves you labor, time and money, and gives you something extra to sell and profit by.

Thermoid Custom-Built Brake Lining Sets are precision products, too... each set certified by Pittsburgh Testing Laboratories to be correct for the vehicles it fits.

Support the National BRAKE-CHECK CAMPAIGN sponsored by the International Association of Police Chiefs

MAY



on flexible fuel lines .



In few products does quality show up more quickly than it does in flexible fuel lines. Flexible lines must be able to take a lot of punishment. They are subjected to heat, cold, gasoline, oil, pressure, vacuum, vibration, constant flexing.

The Imperial Diamond "I" on a flexible fuel line is your assurance that the line will stand up under the toughest service conditions. Imperial Lines have special gas and oil resistant synthetic lining covered with extra tough, braided fabric, with flexible lacquer finish. Fittings are accurately machined, permanently swedged to hose. Each line carries convenient label showing catalog number, makes and models of cars it fits and list price.

You can count on flexible fuel lines, carrying the Imperial Diamond "I", for speedy installation and customer satisfaction.

THE IMPERIAL BRASS MFG. COMPANY, 1217 W. Harrison St., Chicago 7, III.

Here's help in selecting Flexible Fuel Lines. This handy Imperial Data Chart shows at a glance the Imperial Flexible Lines for each make and model of car. If your jobber cannot supply you with this chart, write us giving jobber's name.

MASS FITTINGS . FLEXIBLE FUEL LINES . TUBE WORKING TOOLS . BATTERY HYDROMETERS . FUEL STRAINERS . WELDING EQUIPMENT

R AGE MAY, 1945

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THE **PROGRAM** WITH A ...

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Action-getting spot radio commercials beamed directly to battery buyers in your territory—the most effective spot radio program in battery history!

SALES-BUILDING KITS

Colorful displays, window trims, novelties—all designed to help you build volume and profits right at the point of sale.

PREST-O-LITE PROFIT PLAN

Prest-O-Lite's Profit Plan is made-to-order for dealers who want to do more businessmake more money. To cash in on Prest-O-Lite in 1945, see your jobber, or write to

PREST-O-LITE BATTERY COMPANY, INC. Subsidiary of the Electric Auto-Lite Company INDIANAPOLIS 6 • INDIANA

MAY

no comebacksno failures-

OUT OF 300 TIRES REPAIRED THE INLAND WAY..."

SAYS YVONNE M. JETTE, WIFE OF INLAND BONDED DEALER

Without previous experience Mrs. Jette, Millbury, Mass., quickly learned to make guaranteed repairs. She says, "Turning out perfect sectional vulcanized repairs on Inland equipment, is just as easy for me as it is for my husband. I'm very proud of the 300 tires I've repaired the Inland way, because I've never had a failure or 'comeback.' Our unit paid for itself in 3 months."



No Mystery to Vulcanized Repairs ... No Experience Needed to Make Them the INLAND Way! equipment and the uniform quality of Inland

Inland Teaches You How. An Inland Service Engineer gives you complete instructions-right in

your own shop on your new Inland equipment —in how to make vulcanized sectional repairs that are the strongest part of the tire. Repairs like these—that are guaranteed for the life of your customers' tires.

You don't have to be an experienced tire man nor do you need skilled

help. Inland personal instruction and the simple Inland method, plus the easy-to-operate Inland Permanent Quick-Cure Vulcanizing Sections and Materials, is the combination that starts you right out doing a professional factory-perfect job.

These vastly improved repairs are the basis of the Inland Bonded Dealer Plan. In addition to the equipment you get Bonded identity... and a money-making, field-tested merchandising plan that tells your customers that you make Vulcanized Sectional Repairs guaranteed for the life of the tire.

Equipment requires only 7 square feet

Inland Equipment is especially designed for giving "Big Shop" service in small shops and service stations... takes up only 7 square feet of space... handles tread and sidewall repairs on passenger tires up to 7.50 x 16. You can get the small investment required back in less than a month with only two jobs a day.



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Subsidiary of Minnesota Mining & Manufacturing Co.

Branches in Thirteen Principal Cities

TIRE MANUFACTURERS SINCE 1910

Get complete story in this

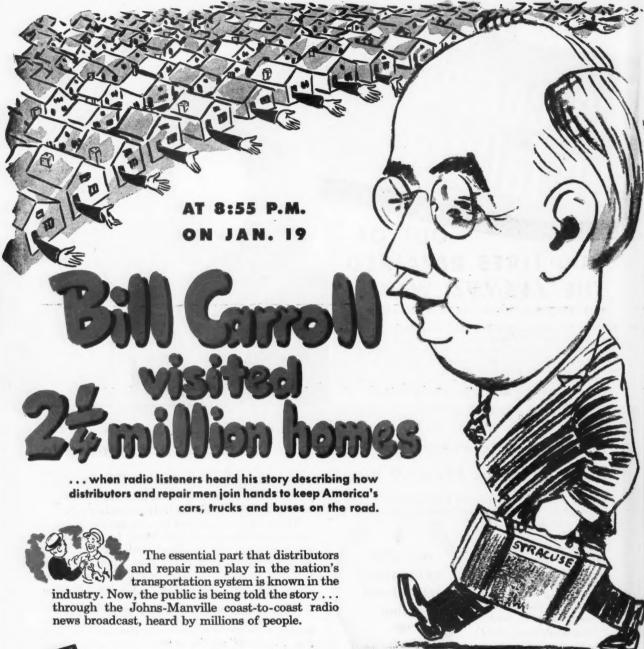
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	send me free information on how I can become an Bonded Dealer.	
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Town....

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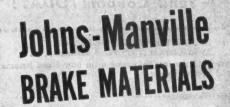
On Jan. 19 at 8:55 p.m., E.W.T., the story of Bill Carroll of the Syracuse Auto Parts Company, Syracuse, N. Y.,

was featured. Johns-Manville gave this radio time, and is giving radio time regularly to help distributors build a secure future for themselves.



The outstanding job that Bill Carroll and America's other parts distributors are doing to keep 28 million &

sential motor vehicles on the road is being described on this Johns-Manville national radio program.



FLEET-TESTED SETS - BRAKE BLOCKS - CLUTCH FACINGS

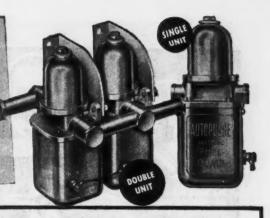
As the oldest name in brake lining, Johns-Manville knows that only with a sound, efficient auto-

motive parts distribution system will we be able to serve better the owners and users of America's passenger cars, trucks, and buses.

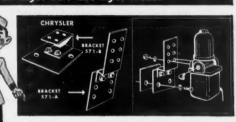
HOW TO AUTOPULSE

THE MANUERSAL ELECTRIC FUEL PUMP"

ON ALL VEHICLES



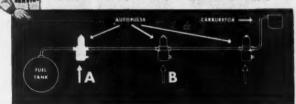
Passenger Cars and Light Trucks



Remove camshaft pump, replace with Autopulse. Use Bracket 571B with Chryster built cars, 571A with all others. Electrical connection is from pump binding post to ignition terminal on back of ignition switch.

Commercial Cars-Or where there is Vapor Lock

Choose convenient location along frame below carburetor and away from exhaust heat. Install Autopulse for pusher action or pull-and-push action. While position A is preferable, all things being equal, positions B and C are satisfactory, and even to be preferred if pump is thereby better protected from wheel-splash.



"In Series" with Cam Pump

Install Autopulse <u>additionally</u> to camshaft pump. Electrical connection is from pump binding post to a special switch. When vapor lock develops, turn this switch "on" until Autopulse clears "lock." This use adds delivery capacity and gives double safety insurance. No cut-off valves necessary.



Reversing Flow Direction

Every Model No. 500 Autopulse can be made to pump in either direction—a great convenience when existing fuel lines are on "wrong" side.



Turn each valve upside down in its own compartment.



3. Re-mark inlet and outlet.

You May Need More Than One Unit

In normal service one Autopulse will serve a 100 h.p. engine. For 101 to 200 h.p. use duplex, over 200, the triplex. Where engines are chronically overloaded, reduce the 100-h.p. factor to 90 h.p. Do not under-equip: a duplex will last twice as long as a single pump delivering any given quantily of gasoline. Multiple manifolds may be rearranged for nearly any installation or flow direction.

Multiple Fuel Tanks

Mount Autopulse on carburetor side of selector valve "in series" with camshaft pump. Or, cam pump may be removed entirely. All parts of fuel line should be below carburetor and away from exhaust line heat.



AUTOPULSE

821 BROOKLYN AVE. DETROIT 1, MICH.

YOU CAN GET THE AUTOPULSE PUMPS
YOU NEED RIGHT NOW. CONTACT
YOUR JOBBER OR WRITE TO THE
AUTOPULSE CORPORATION

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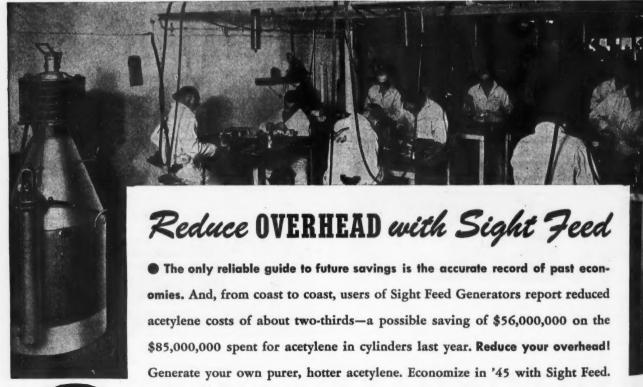
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Sight Feed

SALES: RICHMOND, INDIANA

Sight Feed GENERATOR COMPANY

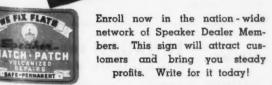
FACTORY: W. ALEXANDRIA, OHIO



-the rubber remains in uncured condition, assuring proper and lasting adhesion. That's why you can depend on a better job with MATCH PATCH. You get another big advantage in MATCH PATCHES. You can "Serve-and-Sell" from the same SPEAKER GROUP PACKAGES-serve motorists by fixing their "flats", and sell others emergency MATCH PATCH packages for road-

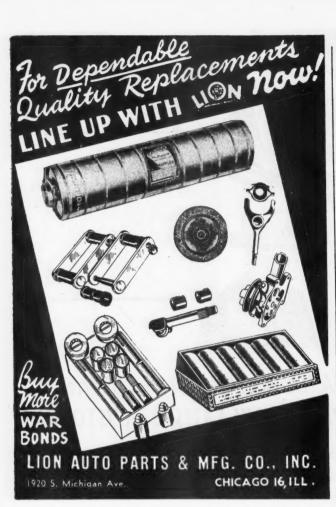
side repairs. Thus both your shop and resale needs are met by only ONE stock of Speaker Group Packages. Order

from your jobber NOW!





OR AGE



Advertisement

Imperfect Song ... It's News!



It's a new twist to an old theme—as Amos 'n' Andy join Dick Haymes in not-too-close harmony backstage at a rehearsal of "EVERYTHING FOR THE BOYS." The famed malaprops were guest stars on the Auto-Lite top hit aired each Tuesday night over NBC coast to coast.

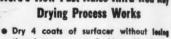
EXTRA Profits in Painting and Touch-up with

NALCO Infra-Red Ray Drying Units

Nalco Infra-Red Ray Drying Equipment cuts drying or baking time to a fraction... cuts painting cost and produces a more uniform finish. It eliminates the need for overnight drying on synthetics... enables you to deliver a paint job in a matter of hours instead of days.



Here's How Fast Naleo Infra-Red Ray



time between coats in 10 to 15 minutes.

- Dry putty glaze in 15 minutes.
- In 10 to 15 minutes after applying infra-Red Rays start polishing color costs.
- Polish synthetic enamel job on a complete fender within 21 minutes after applying.

Naloo Portable Adjustable 5 - Light Unit illustrated.



NORTH AMERICAN ELECTRIC LAMP CO.
1071 Tyler Street St. Louis 6, Misseur



BRUTE STRENGTH WON'T WIN THE WAR

Thousands of Army mechanics have been taught the importance of trouble-shooting the scientific way. They are using Lanagan Generator Test Benches for quick, accurate diagnosis of generator trouble. Lanagan Distributographs, Mica Undercutters, Armature-Testers and other Lanagan equipment are helping them keep mechanized equipment operating with less time out for repairs. After the war, Lanagan equipment will be available for your shop, to help you do faster, more accurate work.

Protect your stake in America's future - BUY BONDS



LANAGAN AND HOKE Philadelphia 44, Penna.

PRECISION AUTOMOTIVE TESTING EQUIPMENT

5 REASONS WHY YOU PROFIT MOST WITH FRAM!

EASY TO SELL! All you do is ask each motorist, "How's your oil filter?" Chances are he'll answer. "I don't know." That gets you under the hood to make the Fram Dipstick test and show him how dirty oil gets without a filter. Man, it's just as easy as 2 and 2!



BIG SALES, PROFITS! Half the cars on the road today have no filters. Many of those that have filters need new cartridges. Result: millions of customers for Fram! You make an average of \$2.00 on each filter (plus installation charge) and an average of 50c on each cartridge.



EASY TO INSTALL! Fram Oil and Motor Cleaners are especially designed for added ease of installation. Most models can be installed in a few minutes. No special tools are needed, no hard dirty work is necessary. Another reason why you will prefer to handle Fram!



BIG DEALER AIDS! Fram backs you up with red-hot national advertising, a big array of pennants, posters, displays and other sales helps. Shopcoats and coveralls at low prices to Fram dealers are effective sales-boosters. Fram really helps you build sales with engine-saving service.



earns you plenty of goodwill by keeping customers' cars rolling. Fram Oil and Motor Cleaner filter out dirt, dust, carbon and sludge, while the exclusive Fram chemical treatment impedes the formation of harmful acids and corrosives that eat away motor parts.

FRAM CORPORATION Providence 16, R. I.

In Canada: J. C. Adams Co., Ltd., Toronto

Oil and Motor Cleaner

MAY, 1945

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M O T O R REBUILDING

Today's volume of engine rebuilding due to the absence of new cars and the need of keeping America on its wheels has caused progressive shops to install Clayborne engine overhaul stands. Get these advantages from your mechanics—increase their man hours

- Improvement in quality of work done
- Efficiency increased
- No more wrestling with heavy blocks or shaky horses
- Ease in rotating, up-ending and other possible positions
- · Safe and easy to operate
- Inexpensive—lowers costs on every operation
- Locking devices hold block in proper position for reboring, valve grinding, cylinder or main bearing line boring, Cam shaft installation, and for many other operations





CLAYBORNE MANUFACTURING CO.

4553 W. Lake Street

Chicago 24, III.



PICKING THE RIGHT SCREW DRIVER

... to perform some particular job easier and more
efficiently is a simple matter when you choose a Vaco.
Vaco Amberyl shock-proof and break-proof plastic handle
drivers are made in 173 types. Handles fit the palm of
the hand smoothly, yet permit a firm grip. Bits take care
of every possible need. Write
for catalog.



315 E. ONTARIO ST. • CHICAGO II, ILL.
Concilian Warehouse: 560 KING STREET, WEST • TORONTO 2, ONTARIO

Here's Where the Trouble Starts!



Every time an engine is opened up to correct oil pumping, it should be checked for worn engine bearings. When engine bearings are worn, excess oil reaches cylinder assemblies and combustion chambers. It burns to carbon, fouling the best of new pistons, piston rings, spark plugs and valves, causing sluggish performance and high operating cost. Continued use of badly worn bearings can result in costly

crankshaft damage. Check for worn bearings and replace with Federal-Mogul Oil-Control Bearings to restore power, pep and operating economy. Engine bearings are a critical war material. We are doing all we can to maintain the supply.

FEDERAL-MOGUL SERVICE, DETROIT 1, MICHIGAN
DIVISION OF FEDERAL-MOGUL CORPORATION

Replace With Genuine

FEDERAL-MOGUL

Oil-Control Bearings



. and here's where trouble starts with INFLATION:



EASY SPENDING—Buying needless things makes shortages. Shortages increase prices and your dollar buys less and less—that's inflation! Inflation can ruin the nation. When

you buy unnecessary things at increasing prices, you're buying trouble for yourself, your neighbor and your country!

don't buy trouble—buy War Bonds instead!

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Write
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OBS

FOR AGE



Yours is the superhuman task of "keeping 'em rolling" in the face of labor and material shortages. Ours is the no less superhuman task of manufacturing and delivering the replacement parts required.

Right now, replacements for Motor Overhauls are urgently in demand . . . as well as parts for Fan Assemblies, Radiator Accessories, Water Pump Repair Kits and Chassis parts. All BULLDOG replacements are interchangeable with original parts and are precisionmade to high quality standards. Order from your jobber.

Write for copy of 100-page BULLDOG Catalog and Dealer Price List. Dept. MA-3.



JAMBOR Tool

Tool and Stamping Co.
3057 NORTH 30th STREET
MILWAUKEE 10, WIS., U. S. A.



our special manufacturing processes. The way to prove Cetron Charger Bulb efficiency is to try any one of our various types...then compare results with your former Charger Bulb experiences. Cetron superiority will be self evident. Write today for descriptive circular.



CHICAGO OFFICE, 903 Merchandise Mart NEW YORK OFFICE, 265 West 14th Street





Complete Motor Analyzers, Tachometers, and Exhaust Gas Analyzers are frozen but we are permitted to make small Testing Units, Battery Chargers, and Welders within our quota limitation. Jobbers buy from us on WPB Form 547 or PDIA and Dealers buy from "KING" Jobbers without a priority rating. The issuance of priority by WPB does not give us the right to exceed our manufacturing production limits set by their Order L-270. For this reason we cannot fill all orders. It may be possible to obtain some of the units you need to make your shop more efficient. Consult your "KING" Jobber.



"KING" MT-625

Ask Your Jobber or Write Us

The ELECTRIC HEAT CONTROL CO 9123 INMAN AVENUE . CLEVELAND 5, OHIO COOD "KING" PRODUCTS SINCE 1914

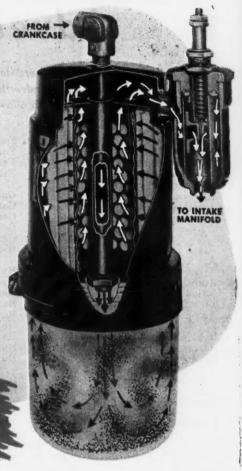
OIL DILUTION

Pat. No. 1,990,657. Other Pat. Pending. Trade Mark Registered

Perfected: METERED and CONTROLLED Crankcase Ventilation DUS —These Additional Advantages

- Removal of water, acid and unburned gas- Rapid detection of leaky or porous blocks oline from the crankcase.
- Restriction of sludge formation and crank-
 - Protects driver, foodstuffs, etc., from obnoxcase varnish.
 - ious crankcase fumes.







... Owner of Oldsmobile equipped with OlLDEX... noted glass jar filled abnormally fast... Removed jar, emptied it, and within a few days it filled again as shown at left... Upon examination found blown cylinder head gasket... proving again the great value of OILDEX as a Trouble Detector!

The filled jar was turned over to us as a matter of interest and after settling for few days separated into stratifications shown. Contents are now at chemical laboratory for analysis. Copy of analysis sent on request.

In normal operation the glass jar requires no attention as the sludge is trapped in the OILDEX Vapor filter element and the water vapors consumed by the motor. THUS IF GLASS JAR FILLS QUICKLY SUSPECT CRACKED BLOCK, CYLINDER HEAD OR BLOWN GASKET. This trouble detecting feature is EXCLUSIVE with OILDEX — one of the many features that distinguish OILDEX controlled and metered crankcase ventilation.

ANOTHER PLUS FEATURE OF OILDEX

OILDEX extraction of liquid and vapor impurities not only prolongs the life and efficiency of the MOTOR, but incidentally protects and prolongs the life and efficiency of the OIL FILTER!

QUICKLY AND PROFITABLY INSTALLED ON ANY MOTOR. ALL MAKES OF CARS, TRUCKS, BUSSES, MARINE AND STATIONARY GASOLINE ENGINES CAN BE EQUIPPED. Specify model and year of car when ordering on our money back guarantee. OILDEX lists at \$15.00 — FILTREX \$10.00 — Complete with Fittings. (Slightly higher on West Coast.)

FACTORY WAREHOUSE DISTRIBUTORS

EASTERN SEABOARD: General Motive Parts Co., 61 Amsterdam Avenue, New York 23, N. Y.

ARIZONA: Diesel Motor & Equipment Co., 1279 So. Central Avenue, Phoenix, Arizona
OHIO: Service Products, Inc., 981 The Arcade, Cleveland 14, Ohio SOUTH DAKOTA: Paisley Auto Supply, 512 So. Main St., Aberdeen, S. D. SOUTHWEST: Midwest Distributors, Box No. 3233 Capitol Bidg., Oklahoma City, Oklahoma

CANADA: Hickson Sales Co., 47 Richmond St., E, Toronto, Ontario

ADVANTAGES

- Light-Compact-Strong Series of different densities of filtering elements
- Partially balanced method of filtration
- Low cost of replacements

With OILDEX removing liquid and vapor impurities and FILTREX removing solid and semi-solid impurities the motor receives COMPLETE Protection.

OF WATSON ELEVATOR COMPANY, INC WEST 36th ORK, 18, N.Y.

UY, 1945

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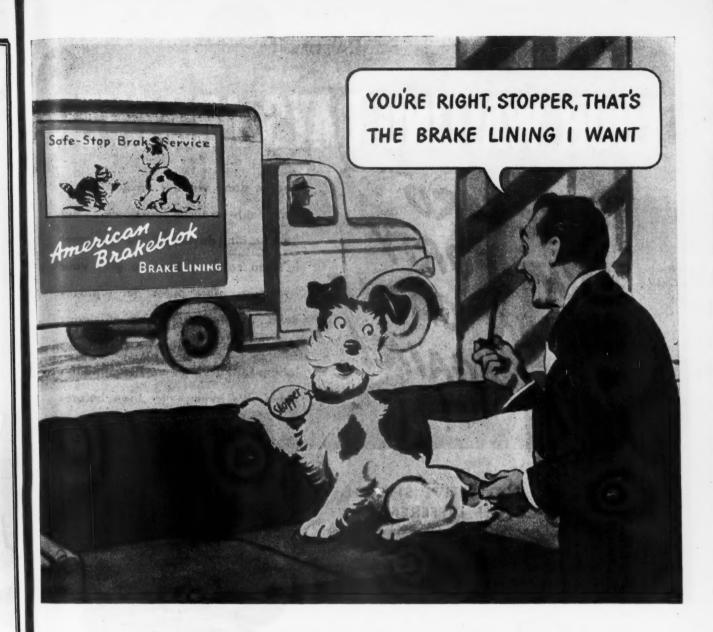
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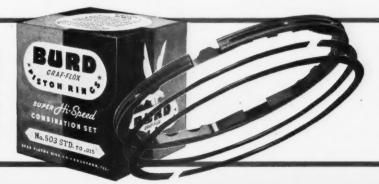


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